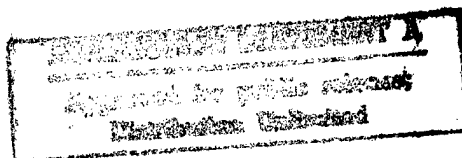


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30 July 1982



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USSR Report

ENERGY

No. 108

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ELECTRIC POWER

ROSTOVSKAYA AES CONSTRUCTION REPORT

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Apr 82 p 1

/Article by V. Aksenov, correspondent: "The Brigade is Responsible for the Construction Project"7

/Text7 V. N. Aksenov, chief of SOTSIALISTICHESKAYA INDUSTRIYA's correspondents' office at the site of the construction of the Rostovskaya atomic electric power station, has started work. Today we publish his first report.

The plan for the first quarter was successfully completed at the site of the construction of the Rostovskaya AES; and in March a record amount of construction and installation work was fulfilled - valued at 2.5 million rubles.

The chief of the construction administration of Atomenergostroy /atomic power station construction administration7, B. Kukarin, reports that "the main thing that predetermined the first success was that we had adopted the brigade contract at all of the key construction projects. And now, six months later, we are convinced that we did the correct thing. For it is the brigades working in accordance with a unified order who have raised the efficiency of their labor. In these brigades discipline is stronger, pay is better, the young workers learn their profession faster, and labor productivity is higher. It was of these advantages of the brigade method that Comrade L. I. Brezhnev spoke at the 17th Congress of the Trade Unions."

In determining the first start-up complex, at Atomenergostroy they singled out the main projects: the reactor and machine sections, the special housing, the cooling pond, and the combined auxiliary building. The cost of each of these projects is from 20 to 50 million rubles. The work on these projects was divided up between nine brigades. By the end of the five-year plan these brigades must complete work valued at almost 130 million rubles - more than half of the cost of the entire complex. They have never seen an undertaking on such a scale.

The brigade contract requires a finished product for each of the elements of the construction sector - a project that is ready to operate. In drawing up a contract for three to four years, as determined for the hand-over of projects according to the new schedules, the brigades and administration stipulated a specific topic for each year. This includes the delivery of materials and structures, the coordination of the work of the subcontracting organizations, and pay. The awarding of bonuses and mutual responsibility are determined by how the annual list of jobs is fulfilled.

In these conditions the competition to provide a worthy greeting for the 60th Anniversary of the Soviet Union has become more substantive and effective. On Nikolay Potapchik's suggestion the competition is being conducted under the slogan: to hand over for operation the first power unit in the first quarter of 1985. This time period is nine months earlier than had been established previously. The collective is supporting the appeal of the leading workers.

To avoid cooling the fervor of the competition, the managers of the construction site and the party organization have done a great deal of work to improve the organization of labor at the site, to create a stable collectives of brigades, and to raise the professional skill-level. They came up with estimates on the number of machines and motor vehicles that they needed. They have established excellent rapport with their suppliers, who will deliver construction fabrications, materials and equipment.

The Volgodonskenergostroy /Volgodonsk power construction trust/ party committee has sent the best brigades to the construction project. The special housing, the cost of which exceeds 40 million rubles, was assigned to brigades led by Georgiy Fomenko and Viktor Bavykin; the combined auxiliary building was assigned to the brigade of Konstantin Shestakov; and the main building was assigned to the brigade of Nikolay Potapchik.

The city of the builders, which stands almost on the very edge of the deep trench, resembles a well-kept and comfortable dacha. The carts stand neatly and in a row. Next to the yard we see the reinforced concrete bars and fabrications neatly laid out. Everything looks as if there was a good caretaker.

In a very visible spot we see a report that Nikolay Potapchik's brigade won the last shock week in honor of the 60th anniversary of the Soviet Union.

"We devoted it to the honored citizens of the city, twice Hero of Socialist Labor A. Ulesov, P. Kotlyarenko, and G. Shpachenko," the brigade leader says. "They all worked on the Tsimlyanskaya GES, Atom-mash and Volgodonsk. We learned our profession from them. This is why each of us strive to present the veteran with our personal gift of labor."

It was during this time that the brigade achieved a record output - nearly 100 rubles per man per shift, which is double the assignment. It was also during this time that the brigade reported that it had fulfilled the four-month assignment ahead of schedule. This is one more step toward achieving the next goal - completing the six-month plan by the opening of the 19th Komsomol Congress.

I ask the brigade leader, "What enables you to achieve such high indicators?"

Nikolay Ivanovich smiles and says, "Look at the trench..."

At present it resembles a gigantic stirred up anthill: from the crest of the earthen wall we can see dozens of powerful KamAZ trucks loaded with dirt, concrete and sections of foundations as they scurry about the interconnected roads. In other places we see sparks flying from the welding work. One can sense that there is a great deal of labor fervor here. The 5th mechanized complex, which has been attached to the brigade, removed 100,000 cubic meters of earth from the trench in March. The excavator operators I. Bobrov, V. Filippov, and V. Komissarov, and drivers M. Luchko and Ye. Rubtsov were the winners of the competition for the month. In addition, N. Potapchik's brigade worked on 3,400 pilings and accepted 3,000 cubic meters of concrete - 1.5 times more than the planned assignment.

"This is the result of the high professional skill of each member of the brigade," continued Potapchik.

Yes, skill is certainly in evidence. Every member of the brigade is a versatile builder and a high-class builder. Here is Aleksandr Gorbachev, who is laying a rainwater drainage line. He is a carpenter, a concrete worker, an installer and a sanitation engineer. Within a three day period Gorbachev and his two assistants have laid almost 200 running meters of the drainage line.

"The sense of responsibility to each other, discipline and collectivism - these are the ingredients of our successes," summarizes Nikolay Ivanovich.

Potapchik's brigade does not only work according to a unified order but also according to a unified pay scale. Everyone receives the same pay. The collective is stable; no one leaves the brigade on a voluntary basis. It is true that there have been departures. Nikolay Vasilenko became chief of the sector. And Pavel Chirskiy was voted deputy secretary of the party committee of the Spetsstroy construction administration. The brigade is proud of this. And there were two or three others who tried to get a free ride in the brigade, but the brigade got rid of them. But the brigade is still growing. This forces the old veterans to become teachers and to teach the young the construction business and to transfer their experience to them.

According to the agreement the collective has determined its own assignment: to complete the concrete work on the discharge channel and to finish the installation of the individually standing foundations of the machine room for the first reactor unit, and to test the new pilings. This represents one million rubles worth of work. The norm is 520,000 rubles.

The brigade has set a difficult plan for itself. But no one at the construction site has any doubts: Potapchik and his comrades will keep their word. The other brigades are keeping up with them.

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ELECTRIC POWER

BAYPAZINSKAYA GES CONSTRUCTION REPORT

Moscow PRAVDA in Russian 30 Apr 82 p 1

/Article by O. Latifi, PRAVDA correspondent, Dushanbe: "The Concrete Work Has Started"7

/Excerpts/ At the site of the construction of the new hydroelectric power station on the Vakhsh River cascade - the Baypazinskaya GES, concrete work has gotten underway. The construction of the GES, which will have a rated capacity of 600,000 kW, was called for in the decisions of the 26th Party Congress.

To begin work in the trench without waiting for the construction of the water-overflow tunnel, they decided to force the river back from the mountain by means of a cofferdam. This provided a significant savings in time. The desire to save time can be sensed wherever one goes here. The Tadzhikgidroenergostroy Trust was the first in Soviet hydroelectric power station construction practice to decide to build the power station on a "turn-key" basis. To do this the trust borrowed money from the bank. If its expenditures are greater than what was agreed with the customer, it will be forced to invest its own money. There are quite a few advantages to this. Thus, if the builders can receive the proceeds from the sale of the energy produced by the units that were erected during the construction of the station. In addition for the ahead-of-schedule introduction of the GES over the period of the year the builders will receive half of the profit from the operation of the power station.

They are using many technical and organization innovations here. This includes the use of the brigade contract.

"Lysenko's brigade has made a contract to build a local highway," reports the chief of the trust, S. Niyazov. "Although the collective came here with rather wornout equipment, still it is working well ahead of schedule. Many other brigades are also working successfully. We are confident that the first power unit will produce current in 1983."

The competition participants are guided by the "workers' relay race" principle and are constantly seeking to improve this form of labor competition, which came from Nurek. In particular, the related supply organizations have proposed delivering to Baypazy five units instead of four and to bring the rated capacity of the power station to 750,000 kW. This decision is justified by the fact that the rivers of Central Asia are used primarily for irrigation and, as a consequence, there is a reserve of "capacity".

Soon Nurek will be receiving workers from all Soviet hydroelectric power stations under construction. They will become familiar with the experience that has been accumulated in mountainous Tajik SSR in the construction of hydroelectric power stations. Naturally, the construction of a large "turn-key" project, which is to be completed within a single five-year plan, will be of special interest.

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ELECTRIC POWER

TECHNICAL PROBLEMS HINDER KARA-SAY, AKSHIYRAK LEP CONSTRUCTION

Frunze SOVETSKAYA KIRGIZIYA in Russian 22 May 82 p 2

[Article by Yu. Gidulyan, chief of the Kirgizenergostroy construction administration, A. Verpetov, party bureau secretary, and V. Smirnov, construction committee representative: "Partners Are Not Keeping Their Word"]

[Text] The 110-kV electric-power transmission line now under construction from Kara-Say to Akshiyarak is of great economic significance. It is a power bridge into Sary-Dzhaz. In many ways, the comprehensive development of the riches in this remote and inaccessible zone depends upon the speed with which this line is erected. The construction plan for the transmission line, however, has been disrupted. This is why.

Plans were made last year to appropriate 700,000 rubles. The Frunze plant of the Energostroyindustriya trust had to produce 428 m³ of precast reinforced concrete and 516 tons of metal structural elements. The Kirghiz administration of Kirgizvzryvprom had to carry out 31,000 rubles worth of drilling and blasting operations. In a word, the program was written up in detail and assigned to specific contractors. What happened? The ZhBI plant put out only 398 m³ of precast reinforced concrete and 88 tons of metal structural elements. Kirgizvzryvprom performed no work at all on this line. Is it any wonder that only 38 percent of the line's construction plan was fulfilled?

The very same thing is happening this year, too. Meanwhile, an intensive program has been planned. We must utilize 1.38 million rubles and put the line into operation in the fourth quarter of this year. Very little has been done, however. By 10 May, for example, blasting work had been carried out for only five towers. Specialists from the Kirgizsvyaz'stroy trust have done just nothing to run communications lines out of the LEP zone. The full amount of reinforced concrete and metal structural elements have not been delivered. Everything here depends on the transportation.

This for us is one problem consisting of many others. The fact is, freight is hauled over a very difficult stretch of road which runs through three passes: the Sary-Maynak (3442 m); the Barskaun (3819 m); and the Suyek (4021 m). The road is impassable due to drifting snow during the November-March period. Vehicle motors break down after two or three runs. Since it is extremely difficult to obtain spare parts, it takes one and a half to two months to repair a vehicle.

We are also greatly hindered by the poor supply of earth-moving equipment, POL materiel and spare parts. At one of the administration's party meetings, it was decided that a letter be sent to the USSR Ministry of Power and Electrification asking for technical assistance. This had definite results. The Issyk-Kul' party obkom also rendered considerable assistance. It engaged the main vehicle plant in Przheval to ship precast reinforced concrete to the transmission-line right-of-way.

Nevertheless, the introduction of this line into service is constantly threatened with disruption. We must bear in mind that this is a line of particular complexity. There have never been similar lines in Kirgiziya. The period of time during which work can be carried out on the right-of-way is very, very limited. We must utilize every day of nice weather. Our partners, however, are not giving this construction project the necessary attention and are missing the favorable times. The administration of Kirgizvzryvprom, for example, is carrying out operations at an intolerably slow pace. Kirgizsvyaz'stroy is also apparently not hurrying with rebuilding the communications line. As before, delays in the supply of gasoline and diesel fuel are very painfully felt. Spare parts continue to be a bottleneck.

The people's material interests likewise play a considerable role in hurrying the work along. Meanwhile, despite repeated appeals to the Issyk-Kul' oblast executive committee to allocate scarce industrial goods and light-duty vehicles to these outstanding workers, there has been no headway made in this matter.

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ELECTRIC POWER

SUBCONTRACTORS CAUSE DELAYS IN ROSTOVSKAYA AES CONSTRUCTION

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 May 82 p 1

[Article by V. Aksenov, chief of the correspondents' post: "They Are Violating the Conditions of the Agreement"]

[Text] The builders of the Rostovskaya AES undertook to commission the first power unit 110 days ahead of schedule. Today the work at the construction site is proceeding at an accelerated pace. A record was set in April: for the first time in four years, almost three million rubles were utilized in one month.

There are no construction and installation administrations nor participants lagging behind within the Atomenergostroy construction administration. This is the result of effective competition under the motto: "Build it on schedule, master it ahead of time," the extensive introduction of team contractors and the heightened sense of responsibility each builder, superintendent and foreman feels for the work entrusted to them.

There are, however, 24 subcontracting organizations also involved in the construction of the Rostovskaya AES. Only 9 of them have managed to cope successfully with the four-month plan. The remaining organizations began the month of May with a combined debt of 1.3 million rubles.

Great delays have also been caused by these subcontracting organizations whose management is located far outside of the region's borders. Their debt for the 4 months is almost a million rubles of construction and installation work.

The chief trust of the Kavkazenergomontazh installation administration is located in Baku. Its director, V. Churbanov, has visited Volgodonsk several times and has always assured us that the delays will be eliminated, an efficient collective will be created and conditions for fruitful labor will be established. Time goes on, however, and the situation only gets worse. From one month to the next the construction administration does not fulfill the plan.

With great satisfaction the Rostov atomic-station construction workers signed a subcontracting agreement with Gidromontazh, one of the oldest installation organizations. They have fine traditions and have achieved a good degree of fame at installations in this country. Today, however, only the installers of hydraulic equipment are maintaining the pace. They have been charged with work in the reactor

compartment. It is a difficult segment. Work is a year behind schedule. Moreover, in order to eliminate the delay, the hydraulic engineers interrupted work on the installation of the cell block in April. This led to an acute drop in the rate of concrete pouring. A total of 200 m³ of concrete were laid, although the plan called for about 3,000.

The trust, located in Moscow, has not been able over the course of the last 6 months to solve the issue of establishing the necessary administration here and forming the staff. Specialists and supervisors from the trust rarely visit the site, are not creating a base and do not provide even this small crew with the necessary materials. Yu. Pavshinskiy, director of the trust, visited Volgodonsk briefly in April. He promised to examine the situation thoroughly and, with this, left for Moscow. Judging from the fact that there has been no improvement, he has forgotten about his promise.

The internal subcontracting organizations also violate plan discipline and the conditions of the agreement. The mechanized operations administration headed by A. Kudryashov is particularly guilty of this. It is subordinate to the Volgodonskenergostroy trust, which has been charged with the construction of the AES.

In April the heavy-equipment operators disrupted the schedule of earth-moving operations at a production facility which was to provide a very wide range of parts, and today builders are forced to place their orders with enterprise throughout the oblast. The trust's administration could not correct its section at all.

Meanwhile, there are examples of how subcontractors are dealing correctly with the work. The Gidrospeetsstroy Order of Lenin Association has established a strong administration, has provided it with the necessary new equipment and keeps a close watch over the situation at the site. As a result, this administration always fulfills its plans and runs ahead of schedule. Since the beginning of the year, workers from Gidrospeetsstroy have utilized 568,000 rubles at the AES site as opposed to a plan figure of 147,000.

The Rostov workers have a rich tradition of organizing socialist competition and of skilfully employing morale and material stimuli and methods of publicity. It is for this reason that the attitude of the trade union organizations toward the stimulus of competing subcontractors is hard to understand. Although the collectives from the general contracting organizations are awarded banners and pennants and are honored with salutatory letters and addresses, the subcontractors are passed over when it comes to this sort of attention. What a pity! The subcontractors at the construction site today are playing an important role.

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ELECTRIC POWER

CONSTRUCTION OF LARGE-SCALE FUEL, SOLAR POWER STATION IN UZBEKISTAN DISCUSSED

Tashkent PRAVDA VOSTOKA in Russian 7 May 82 pp 1-2

[Article by R. Akhmedov: "Sun, Share Your Energy!"]

[Text] An expanded bureau of the section for thermodynamic conversion of solar energy attached to the scientific council of the USSR State Committee for Science and Technology held a joint out-of-town session in Tashkent together with the section for the development and construction of solar-power stations of the Republic Committee for Furthering the Accelerated Research and Utilization of Solar Power in the Economy. This committee is attached to the Central Committee of the Uzbek Communist Party.

Among other things, these sections discussed the issue of creating the world's first large-scale combined fuel and solar power station in Uzbekistan.

We asked Professor Rustam Berovich Akhmedov, doctor of technical sciences, chairman of the scientific section of the State Committee of the USSR Council of Ministers for Science and Technology and first deputy director of the State Scientific Research Power Institute imeni G. M. Krzhizhanovskiy to discuss the essence of this exceptionally interesting, important and challenging problem.

Among all types of renewable energy sources, the potential of solar power is the greatest. It is enough to say that the power from the heat flow of solar radiation reaching the earth exceeds the total demand for all types of fuel and power resources worldwide by a factor of 5,000.

Mastering this wealth of power is not so simple. The chief difficulty lies in the low density of the heat flow. Where, then, is the solution?

One of the most promising directions is the thermodynamic conversion of concentrated solar energy, in particular, the construction of thermodynamic tower-type solar electric-power stations (SES's). This concept was developed at the institute imeni G. M. Krzhizhanovskiy as early as the 1950's. Today, not only designs but also test prototypes of such SES's are being devised in many developed countries of the world.

For example, in the period from 1977 to 1981, solar-power stations of 350-kW to 5-MW capacity were built in the United States, Spain, France, Italy and Japan. A 10-MW SES was built in the United States.

There are 15 solar power stations already built or under construction worldwide, while 63 designs have been developed. Scientists from the United States, Japan, France, Spain, Italy and West Germany are working on designs for large-scale SES's of 300-MW capacity and greater.

True, the cost of electric power derived from solar power stations is considerably lower than that from traditional power stations. The tendency toward rising fuel costs, however, as well as the possibility that expenditures may be sharply reduced through the perfection of technology and the commercial production of SES components make it possible to hope that such stations will be quite economical in the foreseeable future.

Work in the USSR on the creation of solar-power stations is being carried out in accordance with a scientific-technical program of the USSR State Committee for Science and Technology which provides for, in particular, the construction and commissioning of solar power stations which operate on a steam-turbine cycle.

Construction has already begun in the Crimea on the country's first experimental steam-turbine SES with an output of 5 MW. The solar steam generator will be heated by 1,600 planar mirror heliostats, each of which has a surface area of 25 m² and is equipped with an automatic system to track the sun's movement across the heavens. The steam generator will produce saturated steam at a pressure of 40 kg/cm² and 250°C. The generation of electric power will amount to 10 million kWh annually and will conserve 3,300 tons of conventional fuel.

It should be particularly emphasized that the SES under construction is not a production installation, but essentially an experimental unit. For this reason, the per-unit capital investment and the cost of electric power are high in this case.

Solar power stations of 200-MW capacity, for example, possess considerably better technical and economic indicators. The calculations and design studies which have been carried out showed that such a station could generate annually up to 440 million kWh of electric power and could provide a savings of up to 145,000 tons of conventional fuel per year.

Even in this case, however, the SES still will not be able to compete successfully with traditional electric-power stations. For this it will be necessary to reduce the per-unit capital expenditures by a factor of at least 2 to 3 and the cost of electric power by a factor of 4 to 5.

A scientific-technical concept for a combined fuel and solar electric-power station (STES) has recently been developed at the Scientific Research Power Institute imeni G. M. Krzhizhanovskiy. Thanks to the application of a number of technical innovations, the optimization of the thermal circuit and the utilization of a fuel doubler and improved energy-storage systems, such stations obtain a considerable advantage over all other SES designs presently known.

The application of a thermal storage system, for example, makes it possible to use solar power to increase to 4,200 the number of hours an STES can operate annually. In comparison with a standard thermal electric-power station, the STES provides for a fuel savings of up to 50-60 percent.

At this modern stage of development of solar electric-power engineering, such a system must be considered the most efficient and not only relatively simple to realize technologically. Such an STES is already capable of competing with traditional electric-power stations.

In time, as experience is accumulated in the construction of STES's, as their technological designs are perfected and as fuel supplies dwindle, the transition can be made to purely solar electric-power stations.

The world's first fuel and solar electric-power station will be built in Uzbekistan. Such a selection was not at all dictated by chance. There are many regions in the country with a high intensity of solar radiation. The annual number of hours of sunshine exceeds 3,000.

The construction of the first STES is a far-reaching scientific and technical challenge which requires the concentrated efforts of scientific and industrial collectives, the creation and development of new industries (primarily the construction of heliostats and mirrors), as well as the enlistment of additional fuel sources.

The construction of large-scale STES's in Uzbekistan will be an important step forward along the path toward realizing the resolutions of the 26th CPSU Congress and the 20th Congress of the Uzbek Communist Party regarding the involvement of renewable power sources in the country's fuel and power balance.

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CSO: 1822/187

ELECTRIC POWER

BRIEFS

LEP-200 FOR CHITA--The supports for the high-voltage power transmission lines from the Ust'-Ilimskaya GES to Kodar have stepped across the Vitim River from the Buryatskiy to the Chitinskiy sector of the BAM. The laying of a LEP-200, which will provide the builders of the Kodar tunnel with a reliable supply of electricity, is being done by the collective of the Vostoksibelektroset'sstroy /Eastern Siberia Electric Power Network Construction Trust/ Trust. Sixty supports are now ready for wire to be suspended; in June power from the GES will reach Kuandu, a station now under construction on the BAM. Then the installers must install another 105 supports in the tayga; helicopters were to be used to carry them to the site. Having started work, the trust collective pledged to complete the span from the shores of the Angara River to the Kodarskiy Range by the end of this year. /Text/ /Moscow GUDOK in Russian 7 May 82 p 1/ 8927

KOSTROMSKAYA AES PROGRESS REPORT--Work has started on the construction of the Kostromskaya AES. A pioneer base for the builders is now being established; and housing units and social and cultural facilities are being built. The hydromachine operators are particularly busy. They must prepare the basin for the reservoir-cooling pond, the water surface of which will cover dozens of square kilometers, the solid dams, and extend the water level maintenance channels. This year the Atomgrad builders have pledged to complete various finished projects valued at 7.5 million rubles. /Text/ /Moscow IZVESTIYA in Russian 30 Apr 82 p 3/ 8927

SURGUTSKAYA GRES REPORT--The most remote fields of the famous Samotlor oil deposit have now been provided with a reliable supply of electric power. Today a LEP-500, which joins the oil-producing region with the Surgutskaya GRES, was placed under direct current. The power bridge was constructed ahead of schedule. /Text/ /Baku VYSHKA in Russian 15 Apr 82 p 1/ 8927

LEP OVER VITIM RIVER--The supports for the power transmission lines from the Ust'-Ilinskaya GES to Kodar has "stepped" over the Vitim River from the Buryatskiy to the Chitinsky sector of the BAM. Sixty supports have been prepared for wire hanging. In June power from the GES will reach Kuanda, a BAM railroad station now under construction. /Text/ /Moscow PRAVDA in Russian 7 May 82 p 17 8927

SURKHANDAR'YA POWER BRIDGE--The construction of a 53-kilometer stretch of a LEP-110 has gotten underway between Dzharkurgan and Sherabad. It will take its beginning from the largest substation in Surkhandar'ya, the "Yuzhnaya" /Southern/ and will provide current for the Sherabadskiy duck raising complex. The construction of the new LEP is being done by workers of the Chimkentskaya mechanized column No 49 of the Sredaz-elektroset'stroy Trust /Central Asian Electric Power Network Construction Trust/. This is the second project in Surkhandar'ya of the Kazakh SSR power builders. Last year representatives from the Chimkentskaya mechanized column participated in the construction of a high-voltage power transmission line and a substation "Dibadam" in the southern spurs of the Gissarskiy Range. /Text/ /Tashkent PRAVDA VOSTOKA in Russian 25 Apr 82 p 17 8927

LEPS FOR KATEK--A power transmission line has connected two GES's: the Ust'Khantayskaya GES and the Kureyskaya GES, which is still under construction. A LEP-220 has been put on load a full three months ahead of schedule, as projected by the pledges of the power workers in honor of the 60th anniversary of the Soviet Union. A LEP-500 was put into operation ahead of schedule, which will carry current from the Sayano-Shushenskaya GES to the cities and settlements of the Kansk-Achinsk Fuel and Power Complex. /Text/ /Moscow KRASNAYA ZVEZDA in Russian 4 Apr 82 p 17 8927

ANDIZHANSKAYA GES REPORT--The first power unit of the hydroelectric power station, which was built near the dam of the Andizhanskoye reservoir, has been installed. Altogether it is planned to put four units into operation here, with a total rated capacity of 140,000 kW. In this manner the water of the Karadar'ya River, which is collected in the man-made sea, can generate electricity on its way to the fields. The GES is to be completed this year. /Text/ /Moscow KRASNAYA ZVEZDA in Russian 4 Apr 82 p 17 8927

ROVENSKAYA AES PROGRESS REPORT--Kuznetsovsk, Rovenskaya Oblast, 5 April, (RATAU) Work is completed on the second power unit of the Rovenskaya AES. Inspired by the greetings of the General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, L. I. Brezhnev upon the start-up of the power station, the builders and operators have fulfilled within 18 months an amount of work such has never been accomplished in the Soviet Union within such a short period of time on a similar construction project. By this achievement the collective has made a specific contribution to fulfilling the decisions of the 26th Party Congress to ensure the rapid development of the atomic power industry and improving the fuel and power balance of the Soviet Union. All participants in the construction

and the power workers were congratulated for their labor success by the Central Committee of the Ukrainian Communist Party and the UkSSR Council of Ministers. The text of the congratulatory message was read at a meeting, which took place today in Kuznetsovsk, by First Secretary of the Oblast Party Committee, T. I. Panasenko. In the speeches it was emphasized that the production achievements were the result of the creative use of Soviet experience in constructing power projects and the use of leading methods of labor and the conscientious attitude toward their job by the workers, engineers, technicians, employees, skillful political and organization work of the party, trade union and Komsomol organizations. The meeting participants assured the Central Committee of the Ukrainian Communist Party and the UkSSR Council of Ministers that the builders and power workers would in the future work diligently to fulfill the assignments for the further increase in the capacity of the electric power station. /Kiev PRAVDA UKRAINY in Russian 6 Apr 82 p 37 8927

POWER UNIT FOR ZUYEVSKAYA GRES-2--At the Zuyevskaya GRES-2 the first 300,000 kW power unit has been put into operation. One of the largest thermal electric power stations in the mining kray will provide energy to many enterprises of the Donbass. In the construction of the project participated the largest construction trusts and associations, Donbassenergostroy and Gidrospetsstroy. /By G. Dorofeyev/ /Text/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Apr 82 p 27 8927

KURPSAYSKAYA GES REPORT--The Kurpsayskaya GES is still in the construction woods, but it has already provided millions of kW-hours of electricity for the power ring of Central Asia. The power station's first and second power units were put into operation ahead of schedule. The installers and hydroelectric power station builders came up with a bold concept: to put the third power unit into operation ahead of schedule. The program is being successfully accomplished. They have done an outstanding job of coping with this important task - the lining up of the shaft and generator by the brigades of installers from the Spetsgidroenergomontazh Trust /Special Hydroelectric Power Installation Trust/. By three days ahead of schedule the assembly of the turbine and generator bearings was begun. Ahead of the start-up schedule, they completed the installation of the mechanism for monitoring the gate - this was accomplished by specialists from the Gidromontazh Trust. The time periods for starting the third power unit are literally estimated in hours and minutes. /By B. Prokhorov, correspondent/ /Text/ /Moscow IZVESTIYA in Russian 28 Apr 82 p 27 8927

PUMPS FOR ATOMIC POWER STATIONS--A batch of powerful pumps for atomic electric power stations was produced by the collective of the Sumskiy Machine Building Production Association imeni M. V. Frunze. These machines are distinctive for their large productivity and exceptional reliability. They are to be used for circulating water in a closed AES circuit, which helps to remove heat from the reactor. The first four giant pumps were sent to the Yuzhno-Ukrainskaya AES. /By I. Kalashnikov, Sumy/ /Text/ /Moscow IZVESTIYA in Russian 30 Apr 82 p 67 8927

MARY-KOTURDEPE LE-220--Construction of an 800-kilometer stretch of an LEP-220 between Mary and Koturdepe has been completed. The power transmission line has delivered current from the largest electric power station in the Turkmen, the Maryyskaya GRES, to the oil-producing region in the western portion of the republic. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 15 Apr 82 p 3/ 8927

DIESEL POWER PLANTS--The first batch of diesel electric power plants with a rated capacity of 5,600 kW has been put into operation at the Leningrad "Zvezda" Association. Each such unit can supply a construction site or settlement with energy. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 15 Apr 82 p 3/ 8927

REBUILDING OPERATIONS--Zaporozh'ye--A general design has been developed for the reconstruction of land adjacent to the Dneproges. This area lies on the right bank of the Dnepr and extends for several kilometers (from the new bridge across the former Dnepr to Velikiy Lug). A collective from the Dneprogesstroy administration is carrying out the first stage of this great project--the reconstruction of the upper race of the Dneproges and the territory of the hydroelectric station itself. A concrete wall was extended almost half a kilometer. This wall is constructed of slabs almost 9 m high. Almost 20,000 m³ of gravel and sand have been poured, and large-scale public and municipal service operations are being conducted. In the near future, the slopes of the Dnepr here will become as beautiful as Lenin Square on the opposing, left bank and will be as much of a favorite recreation area for the Zaporozh'ye inhabitants. Incidentally, the plan of reconstruction for the right bank was developed under the supervision of A. Ya. Moshenskiy, an architect from the Ukrgidroproyekt Institute in Khar'kov. According to his idea, the reconstruction of Lenin Square was carried out in due course. The area between the premises of Dneproenergo and the waters of the upper race will become a central ceremonial area on the right bank. Plans have been made to erect a monument here in honor of the three generations of heroic builders who constructed the pioneer of Lenin's GOELRO plan--the Dneprovskaya GES. It will be a monument dedicated to the "Friendship of Soviet Peoples," for, indeed, the entire country built this hydroelectric station. This year marks the 50th anniversary of the grand commissioning of this GES. It is symbolic that this date coincides with the 60th anniversary of the formation of the USSR. In preparing for the two jubilees, all labor collectives of the Lenin Region of Zaporozh'ye have decided to participate in the renovation of the right bank. The reconstruction will properly become a public project. The major portion of the work will be carried out this year. [Text] [Kiev RABOCHAYA GAZETA in Russian 18 Apr 82 p 2] 9512

ECONOMICAL TURBINE--Leningrad--A new series of 800-MW steam turbines is distinguished for its efficiency. The manufacture of a prototype was completed yesterday by a production association at the Leningrad Metals Plant. In comparison with previous models, the new unit will require 15,000 tons of conventional fuel less per annum to generate the same amount of electric power. The turbine is almost 60 tons lighter. The first unit is intended for the Permskaya GRES. Plans have been made for the future commercial construction of a great many such units for thermal stations operating on coal from the Kansk-Achinsk deposits. [Text] [Moscow GUDOK in Russian 6 Apr 82 p 1] 9512

NEW POWER LINE--Taldy-Kurgan--A system of high-voltage electric-power transmission lines with transformer substations was accepted yesterday for operation ahead of schedule. These lines provided electric power to fishing settlements in the Apakul'skaya Basin in southeast Kazakhstan. Today this entire remote region has been switched over to a reliable and economical centralized power supply. The 72 km of new power bridges were strung using the "successive team" method. This made it possible for the collectives of linemen to complete all the work twice as fast as planned, despite frequent storms. [Text] [Moscow GUDOK in Russian 6 Apr 82 p 1] 9512

MILLION-KILOWATT POWER UNIT--Nikolayev--"Connect the first million-kW power unit to the country's power system by 28 September of this year." Thus did the builders, installation workers and operators of the Southern Ukraine nuclear power station note in their socialist contracts. It is now the most important precommissioning period at the urgent all-union project. Specialists from the Southern Ukraine installation administration of the Teploenergmontazh trust are working on key facilities. Last year they utilized 2.8 million rubles--a half million more than planned. These installation workers have not slowed the pace this year, either. "We have completed the installation of the low and high-pressure preheaters," said V. Bessmol'nyy, chief of the administration's pipe-fitting shop. "We have installed the modular regenerating desalination unit, as well as filter-generators of electromagnetic and combined operation and feed-water lines. We have carried out a considerable portion of the work being done on the circulating wash and have completed the installation of and hydraulic work on the elevated pipelines from the main building to the chemical purification plant and from the main building to the start-up/reserve boiler plant. We have also installed the pipelines through which liquid nitrogen will be pumped to the machine-room systems and the reactor compartment." By the beginning of May the shop collective must complete the installation of pipelines for the primary condensate, prepare them for hydraulics, install the live-steam lines and put in about 140 tons of temporary pipelines in order to successfully carry out chemical water-purification operations. The teams of V. Staryy and V. Shchur serve as good examples in this work. This nuclear power station, the first stage of which is now being erected on the banks of the Yuzhniy Bug near Konstantinovka, is a component of the Southern Ukraine power system. Its overall capacity is 6.2 million kW. [Text] [Kiev RABOCHAYA GAZETA in Russian 20 Apr 82 p 1] 9512

TBILISSKAYA GRES--Gardabani--Since its first power unit was commissioned, the Tbilisskaya GRES imeni 50th Anniversary of the USSR has generated 100 billion kWh. The socialist competition among allied enterprises along the entire production chain serves the zealous management here. This has made it possible to utilize turbines and boiler units with maximum reliability and efficiency and to reduce nonproductive expenditures. The recommendations of innovative workers saved tens of thousands of rubles and made it possible to reduce the cost of electric power. During a shock shift in honor of the 60th anniversary of the formation of the USSR, the collective of the Tbilisskaya GRES produced hundreds of thousands of kilowatt-hours over the plan since the beginning of the year. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 21 Apr 82 p 1] 9512

TURBINE-PUMP--Leningrad--The production association of the Leningrad Metal Plant has begun manufacturing the first 200,000-kW power unit capable of operating in

turbine and pump modes. Such units will operate at pumped-storage hydroelectric stations slated for construction in the country's European sector. Their power is intended to cover so-called peak loads in the systems. At night, when the demand for power drops, the reversible units at the GAES's will operate as pumps, transferring water into special reservoirs situated at heights of up to 100 m. During peak hours, the water will return to the turbine blades to generate electric power. Pumped-storage hydroelectric stations will increase the reliability of electric-power supply and will contribute to considerable fuel savings. [Text] [Moscow GUDOK in Russian 26 May 82 p 1] 9512

MHD-GENERATOR--Ryazan'--Construction work has begun on a unique power unit at the Ryazanskaya GRES, largest in the center of Russia. This unit will employ a new magnetohydrodynamic principle which differs radically from traditional methods of obtaining electric power. The unit's primary component will be a powerful MHD generator in which the energy of a low-temperature plasma moving in a magnetic field will be directly converted into electric power. Its application will have an effect on the station's technical and economic indicators. Fuel consumption will be reduced by 18.5 percent, the demand for service water will be reduced considerably and the release of harmful substances into the atmosphere will be lowered almost by a factor of 2. The unit's output will be 500,000 kW, that is, it will basically equal the output of a medium-sized electric-power station. Great changes will also take place in the power engineers' city of Novomichurinsk. In connection with the construction of this MHD unit, more than 50,000 m² of living quarters, new children's preschool facilities, stores and schools will be erected for the builders and operators. Natural gas will be used for fuel in the new unit. A special tap on the main gasline as well as a new gas-distribution substation are being built to deliver the fuel. This in turn will make it possible to switch over the station's other two power units from fuel oil to gas. [Text] [Moscow TRUD in Russian 14 May 82 p 4] 9512

SHAMKHORSKAYA GES--The Shamkhorskiy rayon committee of the Azerbaijan Communist Party reports that the critical comments in the editorial "Accelerate the Introduction of Power Installations" (VYSHKA, 12 February) correspond to reality. The bureau of the party raykom discussed the progress of construction at the Shamkhorskaya GES and noted the unsatisfactory work of the administration at this GES now under construction. They also analyzed the work of subcontracting collectives which are taking part in the construction of the hydroelectric station. Measures have been taken to accelerate the pace of the work. Questions have been resolved regarding the delivery of two gantry cranes, the electric equipment for which has already arrived. In accordance with the resolution of the USSR State Planning Committee, the hydraulic generator will be shipped by the end of the second quarter. In order to accelerate the pace of the construction and to render operational aid to contractors, a construction headquarters has been formed, headed by the first secretary of the party raykom. This headquarters includes managers from all construction organizations participating in the construction of the hydroelectric station as well as from the client organization, the Shamkhorskaya GES construction administration. Likewise included are representatives from party rayon, Soviet and other organizations. This construction headquarters will undertake all measures in order to insure that the GES's first power unit is commissioned ahead of schedule as envisioned in the socialist contracts of laborers in the Azerbaijan SSR in honor of the 60th anniversary of the formation of the USSR. [By G. Beliyev] [Text] [Baku VYSHKA in Russian 25 Apr 82 p 2] 9512

NIZHNEKAMSKAYA GES--Naberezhnyye Chelny--The Kama at high water is deep and violent: thousands of cubic meters of water per second pass through the dam of the Nizhnekamskaya GES, now under construction. Pitting their high degree of self-discipline against the elements, the hydraulic station builders began the installation of the ninth power unit. The impeller--a unit weighing 260 tons--was installed in a crater. For this operation, G. Minnakhmetov's crew required just one shift. The hydraulic section builders were obligated to commission four power units this year and to bring the GES up to its design power of 1.25 million kW in the 11th Five-Year Plan. The enterprises of the rapidly growing Nizhnekamskiy territorial production complex will receive a powerful flow of electric power. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 11 May 82 p 1] 9512

MILLION-KILOWATT UNITS FOR CEMA--Power units with the potential to deliver a million kilowatts of electric power and with whose help the might of Soviet nuclear-power engineering is growing will soon become the base units for CEMA member-nations as well. Work on the manufacture of such a nuclear furnace for the Kozlodny station in Bulgaria began yesterday in the Izhorskiy Plant production association. Mass-produced units of 440,000-kW capacity are now being manufactured at atomic "electric factories" in socialist countries. The necessity of increasing the unit output is explained by the problem of the accelerated growth of the power potential: according to the calculations of experts, the consumption of electric power in these countries will grow by a factor of 2.5 by 1990. The use of larger units reduces the capital expenditure for the construction and operation of electric stations. The USSR, Hungary, Poland and Czechoslovakia are gaining experience in the joint construction of AES's with million-kW reactors. The Khmel'nitskaya nuclear electric-power station is being built in the Ukraine on a cooperative basis. Its power will be transmitted to the countries that participated in its construction. [By S. Davydov] [Text] [Leningrad LENINGRADSKAYA PRAVDA in Russian 16 Apr 82 p 1] 9512

SAYANO-SHUSHENSKAYA GES--Sayanogorsk, 11 May 82, TASS--The builders of the Sayano-Shushenskaya GES arrived before the passage of the fifth high water. It was proposed that the water not simply be run off, but that it be used to maximum advantage to rotate the six Sayanskiy turbines. This required that the hydraulic station builders not only raise the dam to a height of 180 m, but also affix its concrete "shoulders" to the rocky banks in such a way that not a drop of water would seep past. [Text] [Moscow PRAVDA in Russian 12 May 82 p 1] 9512

BOGUCHANSKAYA GES--Kodinskaya Zaimka--Yesterday the first cubic meters of concrete were laid in the foundation of the Boguchanskaya GES, the fourth hydroelectric station on the Angara. On 19 September of last year the builders closed off the cofferdam around the foundation pit, pumped out the water and began preparing to lay the concrete. Many times the willful Angara demonstrated its nature. Seepage water began to ooze through the cofferdam into the foundation pit. M. Brudnev's team pumped out up to 2,000 m³ of water per hour. Work in the pit did not stop. The builders blasted rock and used an excavator to remove it from beneath the water. The precise rhythm of the work made it possible to begin laying concrete in the foundation a week earlier than stipulated in the contract. Today the major work front is not only in the foundation pit of the future GES. Construction work is being completed on an automobile highway from Sedanovo to the GES site. When it becomes operational, the pace of work at the construction site will increase sharply. [By V. Khrebtov] [Text] [Moscow TRUD in Russian 18 Apr 82 p 1] 9512

NEW LEP IN FAR EAST--Magadan 14 May 82, TASS--The openwork towers of the 220-kV electric-power transmission line set out along the taiga among the mud volcanoes. This 300-km power bridge over the taiga will connect the Arkagalinskaya GRES and the Kolymskaya GES with the "pole of cold"--the Oymyakonskiy Rayon of Yakutiya. This will make it possible to improve the power supply to the mining industry of Magadanskaya Oblast and the Yakutskaya ASSR. The builders of the new transmission line must overcome dozens of northern rivers, spurs of the Cherskiy Range and swamps in a short period of time. More than 100 metal towers have been installed on concrete foundations, and conductors have been suspended on the first 20-km section along this difficult right-of-way. Flyers are helping the riggers storm the mountain passes. On MI-6 helicopters they deliver multi-ton towers to sites inaccessible to vehicular transport--to the slopes of steep mud volcanoes and precipitous river banks. The construction of this high-tension line is an integral part of the complex program of development of productive forces in Magadanskaya Oblast for this five-year plan. [Text] [Moscow PRAVDA in Russian 15 May 82 p 3] 9512

SUZAK-LENINSK POWER LINE--A power-line right-of-way has connected Kirgiziya and Uzbekistan. Electric power from hydroelectric stations in the Naryn cascade in Kirgiziya has started arriving in the neighboring republic along the Suzak-Leninsk electric-power line. This 80-km trunkline will make it possible to increase considerably the power available to the cotton-growers, vine-growers and vegetable farmers of Fergana. [Text] [Moscow PRAVDA in Russian 9 May 82 p 3] 9512

IGNALINSKAYA AES--An important stage of work has begun at the construction site of the Ignalinskaya AES (Lithuanian SSR)--the installation of the first nuclear reactor. Plans have been made to commission two 1.5 million-kW nuclear reactors in the coming years. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 15, Apr 82 p 3] 9512

ZARINSKAYA TETs--The second power unit of the Altayskiy Kray was placed under industrial load. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 19, May 82 p 4] 9512

PECHORSKAYA GRES--Reinforced concrete towers on the high-tension line from the Pechorskaya GRES have proceeded another 51 km toward the Arctic Circle. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 19, May 82 p 4] 9512

CSO: 1822/187

MINISTRY OFFICIAL TELLS HOW TO MAKE BETTER USE OF OIL-WELL INVENTORY

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 6, Jun 82 pp 6-10

[Article by V. V. Gnatchenko (Minnefteprom [Ministry of Petroleum Industry]):
"Ways to Improve Use of the Well Inventory"]

[Text] Oil-industry workers, like the whole Soviet people, have undertaken a labor drive for the second year of the 11th Five-Year Plan. Concrete goals have been set for collectives, and measures for using production reserves have been worked out.

The first year of the five-year plan was a year of steady rise in work effectiveness and quality in all fields of activity.

The oil industry in West Siberia, the Komi ASSR, Udmurtiya and the Kazakh and Georgian SSR's were developed at a rapid pace. The Yuganskneftegaz, Urayneftegaz, Tomskneft', Bashneft', Tatneft', Kuybyshevneft', Nizhnevolzhskneft', Grozneft', and Saratovneftegaz Associations and other associations operated in stable fashion during 1981.

Along with the execution of an enormous amount of physical work, major organizational work that was aimed at implementing 26th CPSU Congress decisions, primarily to meet plan indicators for the 11th Five-Year Plan, was performed in 1981 in all elements of the industry. Among the central tasks are those of increasing in every possible way the yield on capital by oil and gas recovering enterprises and making maximum use of their productive capacity, especially in operation of the well inventory, which was greatly expanded during the years that the oil industry was being developed intensively. At the start of 1982 the operating inventory of production wells reached 88,771, injection wells 17,313. Last year definite work was done to improve use of the well inventory: the number of inactive wells was cut by more than 10 percent, the utilization factor for the operating inventory rose from 0.923 to 0.926 for the year, and the operating factor rose from 0.956 to 0.957. In the Yuganskneftegaz, Bashneft', Tatneft', Ukrneft', Krasnodarneftegaz and certain other associations, the share of wells that were inactive after having been operated became much lower than the average industry-wide level.

These successes became possible thanks to the answer to the party's call to honor the 11th Five-Year Plan with shock work and initiative and for production collectives to promote widely socialist competition to improve work effectiveness and quality, to accelerate scientific and technical progress, and to fulfill and overfulfill plan tasks successfully.

The Arlanneft' NGDU [Oil and Gas Recovery Administration] of the Bashneft' Association can be named as an example of bold use of the oil-well inventory, which was achieved thanks to an improvement of work organization. Specialization has been effected here in each oil and gas recovery brigade: integrated teams for performing planned preventive maintenance and special prompt-acting teams for starting up new wells and for eliminating current malfunctions have been created. Centralized brigades for the outfitting and delivery of equipment, tools and spare parts to reinforced brigades have been established in equipment-loan departments.

For these brigades and also for brigades that make underground repair of wells, a new system of plan and evaluative indicators has been established for awarding bonuses.

The main incentive factor for the labor of the worker brigades that make underground repair of wells is reduction in the frequency of repair per well and increase in the period between repairs, by improving the quality of the work done. For brigades of workers at the production-services centers, the criterion for awarding bonuses is the fulfillment of plans for oil recovery, the planned-preventive maintenance schedule, and other indicators of basic production facility subunits that are being served.

As a result, despite the annual increase in the well inventory, it has been possible to reduce the number of underground repairs and to cut greatly the number of idled wells. The Arlanneft' NGDU's well-operating coefficient was 0.970, and the period between repair operations on them reached 427 days, with a labor-intensiveness of servicing of 0.72 person per well. The collectives of oilfields Nos N1 and N5 that are under V. S. Men'shikov and K.A. Akhmetov toiled especially well here.

There are many such examples. Thus, the oil-recovery brigade of foreman A. G. Iskhakov at oilfield N2 of the Leninogorskneft' NGDU of Tatneft' Association, which services 126 wells, met the year's socialist commitments by September. All (81) of the wells that are assigned to the brigade of oil-recovery foreman Z. M. Aminiyevev of Mamontovneft' NGDU of the Yuganskneftegas Association are active.

A major reserve for increasing oil recovery is, as before, a reduction in the time spent developing fields, building up facilities thereat, and introducing into operation new wells, which are being counted on for the main growth in oil recovery. A most important role here is played by reduction in the time spent building up oilfield facilities.

Work to accelerate the startup of new recovery capacity has been arranged especially well by Tatneft' Association, where the remarkable initiative of drilling foreman D. M. Nurutdinov, "Put oil wells on the flow-line," which has been giving good results not only in Tataria but also in other parts of the country--in the Orenburgneft', Krasnodarneftegaz, Kuybyshevneft', Bashneft', Permneft' and Udmurtneft' Associations--was born. This work is not receiving proper attention in Glavtyumenneftegaz and the Turkmenneft' and Embaneft' Associations, as a result of which new wells awaiting the buildup of facilities and assimilation of their operation are gaining in numbers.

One of the indicators that characterizes oil-recovery production operations is the period between repair of wells (MRP), which depends upon the reliability of the

equipment that operates at the well and the level of its servicing. Minnefteprom is working to increase the reliability of well equipment. Thus, the reliability of submerged centrifugal electrical-pump installations (UETsN's) is rising, because of an increase in the production of corrosion-resistant models of heat-resistant motors and pumps. The production of sucker-rod pumps with liner-free cylinders and metal plungers has begun in earnest. According to the data of preliminary tests, these pumps will enable the MRP of wells to be increased 1.3- to 1.5-fold. Sucker rods have begun to be manufactured at a fairly high level, although the production volume still does not meet the industry's needs. The production of gas-lift equipment is being arranged. At the same time, operational and organizational measures that will foster an increase in the MRP of wells are being executed.

Much work is being done at wells equipped with sucker-rod pumps (SShN's), which comprise 62 percent of the entire operational oil-well inventory. It must be noted that, thanks to major organizational work in many associations, the utilization factor of wells with SShN's has been maintained at a high level in recent years, while the Yuganskneftegaz, Urayneftegaz and Orenburgneft' Associations achieved the best improvements in the use of the operational well inventory.

The Bashneft', Tatneft', Kuybyshevneft', Nizhnevolzhskneft' and other associations are paying great attention to the design of sucker-rod strings, taking into account the density of the fluid, depth of rod hangers, and the pump's operating regime; to the conformity of the equipment that has been lowered into the well with the well's recovery potential; to organization of input monitoring of the quality of equipment that arrives and to the reporting of its movements; and so on. At the same time, not enough attention is being paid yet to questions of raising the MRP of SShN-equipped wells in the Azneft', Komineft' and Tomskneft' Associations.

The well inventory that is being worked by UETsN's requires constant, earnest work. Despite the fact that their proportion is 20 percent, they recover more than 30 percent of the oil and more than half of all liquids.

In most areas, UETsN utilization has been improved, since regular work is being done on them with regard to study of the wells, optimization of regimes for operating them, and the selection of appropriate equipment by means of computers. At the same time, because of uncomplete work by the services of NGDU's and of associations (workshops of TSBPO's [Central Bases for Production Services] and underground repair services), there are, as before, a large number of repeat and premature repairs (that is, repairs of installations that had not worked out their guaranteed service periods) in Glavtyumenneftegaz and the Tomskneft' and Komineft' Associations. As a result, the wells' recovery potential is not being used fully, especially at highly productive rigs.

Minnefteprom has worked out a program for introducing highly productive UETsN's of increased reliability during 1981-1985 and during the period up to 1990. The program calls for the introduction of a standard organizational structure for the central base for production services for the repair and loan of UETsN's, a unified technology for repairing components at all repair bases, new means for automation at wells, and so on. Jointly with other ministries, a program has been developed for the creation and introduction of improved means for raising the liquid from wells, which calls for the production of sucker-rod pumps with a complete cylinder and metal plunger, and a stroke of less than 6 meters, particularly in

wear- and corrosion-resistant models; heavy-duty pumping units; and UETsN's for operation where there is increased input gas content, and also a modular version.

Introduction of the progressive gas-lift method for operating wells occupies a special place in the plans. This method should become one of the basic methods for oil recovery in West Siberia. Moreover, its introduction is being contemplated also for Komi ASSR fields. The rebuilding of existing gas-lift systems in Mangyshlakneft', Turkmenneft' and other associations also is called for. The program for introducing the gas-lift method will be implemented with the use of newly created technology and a complex of automated compressor stations based upon centrifugal compressors, removable in-well equipment, and automated gas-distribution installations.

It is also planned to introduce during the current five-year plan another promising method for recovering crude: the installation of free hydraulic pumps that will permit replacement of a pump without underground assemblies and the killing of wells, which is convenient for the operation of clusters of slanted directional wells in areas that are difficult of access.

A rise in the MRP of wells should be a subject of paramount concern for the engineering and technical services of oil and gas recovery enterprises and of scientific-research organizations. It is necessary to constantly improve operating measures, establish sharing regimes for the operation of equipment, improve standard practices for optimizing well operations, improve the supplying of repair sections and monitoring services with more equipment, and so on.

Among the reserves for raising the productivity of production wells are methods for stimulating the bottom-hole zone of the formation. Various methods of stimulation are being used: acid, heat and thermal-gas-chemical drive, treatment with various solutions, and hydraulic fracturing. Each year more than 10,000 well operations are conducted, resulting in a definite growth in oil recovery. However, the work volume in this area is not adequate for the greatly growing well inventory, and, moreover, these operations lead basically to an old-well inventory, where the wells' effectiveness is much lower than if the work had been done in the initial stage of developing the field. The success rate for the operations is not adequate, and the selection of targets for stimulation is not always substantiated. Scientific-research organizations should play a major role here. It is necessary to intensify work on choosing optimal methods and stimulation technology for each specific field, generalizing the great and diverse experience of the various regions, and taking from it all that is best for systematic introduction in all regions. Unfortunately, a restraining factor in developing these methods is the inadequate capacity and productivity of the equipment being used. The machinebuilders must organize more rapidly the production of scarce operating equipment. Problems in dealing with deposition in wells and with oilfield equipment for inorganic salts and paraffin-asphalt substances are becoming increasingly urgent. For these purposes, internal coatings for pumps and compressor pipes, made of epoxide resins, enamels and glass, are being applied at the oilfields, and chemical methods (deposition inhibitors) are also being used, and they are receiving the widest distribution. Each year more than 4,700 wells are being treated, but these operations are being hampered by the inadequate production of chemical reactants and limited variety, and a poor supply of measuring devices. Scientific-research organizations should develop a wide range of inhibitors so the most effective one may be chosen for the conditions of each specific field,

better technology for introducing inhibitors, and a standard series of measuring installations.

At present 1,155 brigades for underground well repair and 1,050 well-overhaul brigades in the branch are engaged in maintaining the well inventory in an efficient condition. In areas where the great importance of these services is understood correctly, well-repair brigade collectives operate successfully and stably. These can include the Tatneft', Bashneft', Ukrneft', Kuybyshevneft' and Grozneft' Associations, at which, although the number of brigades has remained practically unchanged in recent years, the idle time of wells has been constantly reduced and the MRP increased.

At the same time, not everywhere are associations paying adequate attention to improving organization of the work of well-repair brigades. While for the industry as a whole the time spent by brigades on auxiliary operations (killing wells, moving from well to well, performing preparatory and finishing-up operations), comprises 25-30 percent of total time consumed, the figures are 45-75 percent in the Belorusneft', Permneft', Surgutneftegaz, Yuganskneftegaz, Nizhnevartovskneftegaz, Tomskneft' and Gruzneft' Associations. There is still much repeat repair on wells. The largest amount of poor-quality repair work occurred in the Azneft', Surgutneftegaz, Uzbekneft', Nizhnevartovskneftegaz, Permneft' and Orenburgneft' Associations. These regions must carefully study and imitate the work experience of the Bashneft', Nizhnevolzhskneft', Ukrneft' and Grozneft' Associations, which have operated for many years without repeat repairs.

Collectives of well-repair brigades under foremen Heroes of Socialist Labor S. S. Gataullin and M. A. Chirvon from the Tatneft' and Ukrneft' Associations, USSR State Prize winners A. G. Basyrov and R. G. Fayzullin from the Bashneft' Association, Leninist Komsomol Prize winners A. S. Prokayev from the Orenburgneft' Association and I. I. Dunayev from the Bashneft' Association, A. F. Sinchurin and A. Ye. Gorskov from the Tatneft' Association, V. P. Zadorzhnyy from the Yuganskneftegaz Association, I. G. Galiyev from the Tomskneft' Association, and many others are toiling with high quality and are surpassing the goals.

Last year the Minnefteprom managers approved an integrated program of scientific-research and test-design operations in the field of improving the reliability of well structure during 1981-1985, which calls for the development of standardized technical documentation and improvement of the equipment and technology for sealing-repair work, the organization and planning of repair operations, and the saving of production resources. Definite work is being done in this area. Thus, TatNIPIneft' [Tatar State Scientific-Research and Design Institute for the Oil Industry], in collaboration with branch laboratories for intensifying oil recovery of the UkSSR Academy of Sciences, has also worked out and is using on an industrial scale in Tatneft' Association liquids based on water-in-oil emulsions for killing wells, which enable formations to be assimilated more quickly after the completion of repair, with retention of the reservoir characteristics of the pay zone.

It is planned to use these liquids also in other associations of the industry.

UPT1-50 hoisting installations and LPT-8 lifting winches are arriving at field facilities this year, to replace the obsolete Bakinets-3M and AzINMASH-43P units, and the production of D1-54 bottom-hole helical motors, KTDU-type tongs,

comfortable personal-amenities cabins and fishing and other tools is being increased.

In order to further improve use of the operating-well inventory and to maintain it in an efficient condition, standards were developed for 1981-1985 for the number of wells, differentiated by region, undergoing overhaul after operation, planned preventive maintenance, and the buildup of oilfield facilities and the mastery thereof after drilling. The introduction of these standards will promote further regularization of well-inventory utilization.

In the matter of improving quality of the treatment of crude oil, good results have been achieved by the Kombineft', Ukrneft', Saratovneftegaz, Belorusneft', Bashneft' and Tatneft' Associations, at which the basic amount of crude now being turned over is of the highest quality category. At the same time, the Nizhnevartovskneftegaz, Surgutneft', Tomskneft', Mangyshlakneft' and Uzbekneft' Associations permit the turnover of untreated crude. Here they are not adequately engaged in improving the equipment and technology for dewatering and desalting the crude, they do not introduce installations for treating it into operation on time and they do not use existing capacity effectively. Unfortunately, scientific-research institutes are still slow at solving problems associated with treating heavy crudes and improving the separation of oil into the final grades, which, it goes without saying, is reflected in the effectiveness of oil-recovery production operations and quality of the output.

More than 90 percent of the crude now delivered is reported by the NGDU by the tank-free method, using flow-meter counters. In the next few years the supplying of components for counting apparatus for determining the quality of crude in the stream, which will raise the authenticity of reporting, will be completed. Because of conversion to the brigade method of servicing wells, the reporting of oil by brigade has become extremely urgent. Providing for reliability of measurement of well product that is necessary for this--a product that is a gas-saturated oil-and-water emulsion--presents a fairly complicated task, for the accomplishment of which the active assistance of scientific-research and design-development organizations is required.

The CPSU Central Committee and USSR Council of Ministers have established the task of improving radically all the work on savings and rational use of raw materials and other materials, fuel and energy, imparting to this work a truly nationwide nature and providing support for a strict savings regime in all branches of the national economy, in each laboring collective, and at each workplace. Oilfield workers have responded enthusiastically to the call of the party and the government. Much work has already been done in this area in the associations. During 1981-1985 new, more progressive methods for industrial losses of crude during its treatment, transporting and storage were put into operation, and secondary use is being made of fuel and energy resources. The heat of the drain water at crude-oil treatment installations is being used everywhere, by means of which the industrially necessary discharge of formation water is performed upstream of the installations that treat the crude, without additional fuel expenditure. With a view to saving fuel and using the heat of recovered oil, effective demulsifiers and industrial equipment have been chosen which permit the crude to be readied without additional heating in furnaces. Work is being done to convert facilities that consume crude to gas fuel and to reduce the consumption of crude for in-house needs.

One of the effective measures for the rational use of equipment and electricity at low-withdrawal wells is the conversion thereof to periodic operation. This measure must be carefully worked out and conducted in all oil-recovery associations.

There are now at oilfield facilities more than 15 types of units for mechanizing labor-intensive operations (the installation of anchors, the preparation of wells for repair, the servicing and repair of sucker-rod pumps, surface equipment and water mains, the mechanized loading, unloading and transporting of equipment, and so on), and, during the current five-year plan, it is planned to supply the industry also with other units (for servicing oilfield power grids and electrical equipment, the responsive servicing of wells, the gathering of condensate, and other units). The branch average equipping per 1,000 wells, which is more than 20 rigs, is increasing considerably, so an important task for oil-and-gas recovery workers is to raise in every possible way the level of utilization and skilled operation of currently available and newly arriving equipment.

Along with better organization and a rise in the technical level of servicing the well inventory, it is necessary to continue work on intensifying the primary elements in oil recovery that were created in recent years--departments for the recovery of oil and gas (of oilfields) and the recovery brigades within them. The brigade form of organizing work has proved itself to be more progressive and more completely responsive to modern requirements of scientific and technical progress and to the goals for raising production effectiveness. This is obvious also from the experience of the industry's leading collectives, so organizational work in the associations should be aimed at further improving in every possible way the brigade forms of work, at introducing everywhere brigade reporting of crude, at organizing brigade cost-accounting, and achieving, on that basis, high production effectiveness and a reduction in the expenditure and consumption of materials, fuel and electricity.

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WORKING CONDITIONS OF GAS SALVAGE CREWS FIGHTING A GAS-FED FIRE

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 4, 1982 pp 38-40

[Article by P. V. Kutsyn, Ye. M. Gerasimov, G. N. Babiyev and D. A. Koksharov, Ministry of Gas Industry, VolgoUralNIPIgaz and Orenburggazprom]

[Text] A controllable model of a contained gas-fed fire is used to evaluate the working conditions of gas salvage crews and to develop proposals on using personal protective resources.

Research conducted at an experimental proving ground had the purpose of obtaining objective characteristics for the working conditions of gas salvage crews fighting a burning gas gusher.

The research methods corresponded to those ordinarily employed in hygienic research: The intensity of thermal radiation was measured with a thermoelectric actinometer and a ball (Vernon) thermometer, air temperature was measured with conventional mercury thermometers and with extraneous thermometers mounted on supports at 10 meter intervals in four directions of approach to the center of the gusher--north, south, east and west (for a total of 50 measuring points); relative air humidity was determined with an aspirational psychrometer (Assman's), and the rate of air movement at an elevation of 1.5 meters was determined with an axial string (LSO-3) and a cup (U-5) anemometer; determination of the presence of anomalies in local winds near the gusher was attempted with 20 sensitive wind vanes secured to masts 1 meter tall; atmospheric pressure was measured with an aneroid barometer (M-98).

All microclimate parameters were measured synchronously in 10-minute intervals by specially trained research teams equipped for operations at the head of the gusher. The intensity of noise generated by the gusher was measured with a noise gage produced by the RFT Company (00014) with an octave filter (01016). Surface illumination produced by the flame of the gusher and natural illumination were measured with a U-116 objective luxmeter, equipped with light filters and having a measurement limit of 100,000 lux.

Contamination of air in the work zone by the products of incomplete combustion of sulfur-containing natural gas was measured continuously using quick-analysis stock gas analyzers (UG-2, GK-4) sensitive to hydrogen sulfide, sulfur dioxide, carbon monoxide and hydrocarbons, as well as to carbon dioxide and methane (ShI-10). A chromatographic method was used on air samples taken in polyethylene chambers. These samples were analyzed in the field using a mobile gas analysis laboratory.

The concentration of hydrogen sulfide and sulfur dioxide was determined by the arsenite and barium oxide methods using chemical absorbers, and the concentration of carbon monoxide and hydrocarbons was measured with a TG (VS-763321) titrometric gas analyzer. Air samples were taken for all chemical analyses synchronously in the different experimental series 30-60 minutes after the gusher achieved a steady state. The sampling points were at the head of the gusher on the windward side and 50, 200, 500 and 1,000 meters from the gusher on the leeward side. The control point was located outside the zone of influence of the gusher (150 meters from its head, on the leeward side). In all, three series of experiments were conducted with burning gas flowing at a rate of 0.5, 1.5 and 2.5 million m³/day.

The meteorological conditions at the control point were: air temperature 26.6°C, relative humidity 25-32 percent, wind speed 5 m/sec with gusts up to 10-12 m/sec, wind directions varying within the sector bounded by the south and west bearing lines.

The experiment produced the following results.

Microclimate

We were unable to detect a zone of anomalies in local winds at an elevation of 1 meter above the ground: Out of 104 measurements, 41 indicated winds with a southerly direction, while in all other cases the winds were southwesterly, coinciding with the wind direction at the control point. Synchronous measurements of atmospheric barometric pressure near the gusher head and various distances away from the gusher did not reveal any deviations from control either.

In all series of measurements the thermometers mounted 1 meter above the soil surface produced measurements exceeding the air temperature beginning with the 50-meter mark in the direction of the gusher (see table). The amount the air temperature was exceeded (by up to 70°C) increased as the discharge of combustible gas increased and as the gusher was approached from the leeward side. However, in our opinion the readings of the exposed thermometers did not reflect the true climatic air temperature near the gusher, since measurements of air temperature and humidity with the aspirational psychrometer, the thermometers of which are dependably protected from the influence of radiant heat, produced different results 20 and 150 meters away from the source of the gusher on the windward side (26.6°C and 32 percent relative humidity). For this reason air temperatures associated with a gusher flow rate equivalent to 2.5 million m³ of gas per day were measured with paired thermometers--conventional exposed thermometers and thermometers shielded with 80×90 mm doubled aluminum plates, secured 15-20 mm in front of the thermometer balls.

In a 10 m radius from the head of the gusher the exposed thermometers were heated to 100°C, while the temperature of the shielded thermometers did not exceed 50°C. The surface layer of soil in this same zone was heated to 100°C, and the readings of the ball thermometer were within 86-95°C, which corresponds to a radiant temperature at the source of about 2,000°C.

All of this permitted the conclusion that the exposed thermometers were showing not the air temperature but the degree of heating caused by radiant heat from the flame of the gusher, reduced by the cooling influence of the wind. Air temperature

Thermometer Readings at Different Distances From the Well Head (°C)

Compass Bearing	Gusher Flow Rate, Million m ³ /day	Distance From Gusher Head, m			
		20	30	40	50
North	0.5	59, 44, 45	45, 37, 38	39, 35, 36	35, 31, 32
	1.5	49, 47, 48, 47	40, 40, 40, 40	38, 37, 38, 36	32
	2.5	64 (50)	64, 44, 43, 45	—	—
East	0.5	42, 42, 54	40, 40, 39	38, 38, 34	38, 38
	1.5	48, 48, 47	42, 46, 42	38, 38, 38	—
	2.5	54 (34), 58 (37), 80 (46), 64 (42), 64 (43)	49, 49, 68, 52, 52	—	—
South	0.5	35, 38, 34	33, 33, 31	32, 32, 31	30, 28, 29
	1.5	43, 46, 42	38, 37, 35	31, 32, 33	31, 30, 30
	2.5	38 (32), 38 (31), 40 (35), 37 (32), 38 (33)	38, 27, 39, 38, 39	—	—
West	0.5	31, 33, 34, 33	34, 33, 32, 32	32, 31, 30, 29	33, 30, 31, 30
	1.5	37, 35, 35, 32	35, 33, 34, 33	30, 30, 31, 30	31, 31, 31, 30
	2.5	41 (34), 39 (33), 40 (33), 40 (34), 40 (34)	38, 38, 38, 38, 39	—	—

Notes: 1. Measurements were made every 10 minutes. 2. The temperature of shielded thermometers is shown in parentheses.

measured on the leeward side by a partially shielded thermometer did not exceed 50°C, meaning that there was no danger of heat damage to unprotected respiratory organs. A quantitative evaluation of the intensity (surface density) of thermal currents acting upon gas salvage crews 10, 5 and 3 m from the head of the gusher is given in the figure.

The research showed that the intensity of thermal currents near the gusher exceeds 16 kw/m² (at a gas flow rate of 2.5 million m³/day) and that it depends on the flow rate of combustible gas, the height of the flame above the heads of the workers (the distance from the source of the gas to the base of the flame) and on the emitting surface area of the gusher flame, which varies in response to wind pressure. Relatively larger irradiation values were recorded as the flaming gas jet was approached from the side, and they were significantly smaller at the same distances from the head of the gusher on the exact windward side. Gas salvage crews working in direct proximity to the source of a gusher are affected by an intricate complex of thermal influences: from above--by a current of radiation energy; from in front--by a highly cooled pipe (the source of the gusher); and by the forcibly ejected current of gas. The readings of an actinometer mounted horizontally 5 m away from and facing the pipe did not exceed 10.5 kw/m², and they were 25 percent lower than the indicators characterizing the amount of thermal radiation experienced by the head and shoulders.

		q , million m^3/day					
		0.5	1.5	2.5			
10 m		12,6	14	16,1			
		6,3	6,3	11,2	11,9	14,7	14,7
		3,8					
5 m	$v=5 m/sec$	12,6	14	11,2	$v=5 m/sec$	11,9	N
		11,2	11,2	14	13,3	14,7	11,9
		5,6					
3 m		14	14,7	16,1			
		11,2	11,2	14	14	14	14,7
		5,6	13,3	11,2			

Intensity of thermal radiation (kw/m^2) 10, 5 and 3 m from gusher source at different flow rates q (the sensitive panel of the actinometer was directed upward, in the direction of maximum irradiation, for all measurements)

Light Flux Intensity

The intensity of the light flux created by the burning gas jet and measured with a Yu-16 objective luxmeter depended on the flow rate of the combustible gas, the distance to the head of the gusher and the amount of natural illumination. In none of the series of measurements made 3-50 m from the head did maximum vertical illumination exceed maximum natural illumination (62,000 lux), as recorded at 1515 hours on the day the experiment began. It was concluded on this basis that the intensity of the light flux from the flame of the gas jet does not present any danger to the organs of vision.

Noise Level

The research showed that the noise level depends on the flow rate of the gusher, and at the 10-meter mark it is: 83 dbA for a flow rate of 0.5 million m^3 of gas per day, 116 dbA for 1.5 million m^3 of gas per day and 124 dbA for 2.5 million m^3 of gas per day. The acoustic pressure of the gusher was 156 dbA, and it corresponded to the acoustic pressure generated by an acoustic emitter on the ground with a power of more than 4 kw. Spectral analysis of the gusher's noise at a flow rate of 2.5 million m^3 of gas per day indicated that the noise level exceeded that permissible in industrial facilities at all frequencies. Measurements of the sound level at different distances from the source of the gusher showed that the boundary of the zone of dangerous sound levels requiring the use of personal ear protection is at a radius of 210 m from the gusher. At the same time it was found that the most commonly employed ear protection devices do not provide full protection to the hearing organs of gas salvage crews, mainly because of the higher level of low

frequency sounds. Even the best ear plugs do not satisfy the necessary requirements, though their protective properties are most in keeping with the spectrum of analyzed noise. In this connection we recommend combining ear plugs with antinoise helmets. Moreover the time of exposure must be limited by working the crews in shifts.

Work Zone Air Contamination

Presence of contaminants in air samples taken in direct proximity to the head of the gusher was not revealed by any of the methods of analysis employed, with the exception of chromatography, which indicated universal presence of background methane concentrations. The first concentrations twice exceeding the background level were detected chromatographically 50 and 100 m from the head of the gusher on the leeward side. Laboratory and quick methods revealed presence of incomplete gas combustion products 40, 50, 100 and 500 m from the source of the gusher when air was sampled beneath the level of the burning gas jet within the leeward sector. In this case the maximum concentrations of sulfur dioxide regularly detected in the ground layer of the atmosphere 50 m from the burning jet were 5-9 mg/m³. Hydrogen sulfide was established at concentrations of up to 0.048 mg/m³ in just a few samples in a 500-meter zone. Carbon dioxide and hydrocarbons were revealed at concentrations of up to 2 mg/m³ by UG-2 and GK-4 units only four times in a series of 50 measurements, at a gusher flow rate of 2.5 million m³ of gas per day in a zone from 100 to 200 m. Significantly greater concentrations (up to 103 mg/m³) of mixtures of these substances were revealed with the titrometric gas analyzer. These substances were detected within the zone of anticipated settling of the combustion products of natural gas--within a sector from 500 to 1,000 m away, at all gusher flow rates. However, the statistical insignificance and significant scatter of indicators in each of the analytical series make the results obtained by this method doubtful.

Products of incomplete gas combustion are revealed in the leeward zone within the sector of anticipated settling of the trail of contaminants produced by the burning jet (500-100 m), in concentrations not exceeding the maximum permissible doses of a work zone. Therefore even a theoretically possible 180° change in wind direction could not cause gas contamination of the air in the work zone, and it would not be a hazard to workers at the head of the gusher. In this connection the use of self-contained breathing apparatus or other personal resources for protecting the respiratory organs during work at the head of a burning gusher is not justified by the degree of contamination of inhaled air or by the amount of its heating.

The information presented here makes it possible to raise the question of stockpiling self-contained breathing apparatus at the approaches to a burning gusher. This would reduce the weight of the equipment carried by salvage crews by more than 10 kg, it would reduce the constraints on their movement, and it would improve their performance.

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FUELS

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OIL, GAS WORKERS' TRADE UNION DISCUSSES ITS ROLE IN RAISING OUTPUT

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 6, Jun 82 pp 3-6

[Article by V. T. Sedenko, Chairman of the Central Committee of the Trade Union of Oil and Gas Industry Workers]: "On the Results of the Second Congress of the Trade Union of Oil and Gas Industry Workers"]

[Text] The Second Congress of the Trade Union of Oil and Gas Industry Workers convened in Moscow on 27-28 January 1982. It was an important event in the social and political life of our laboring collectives. It was, primarily, a report to the Communist Party and to workers about the work done by the trade union in the last 5 years.

Our trade union greeted its regular congress organizationally strengthened, having gained great experience in meeting goals for further developing the country's oil and gas industry. The trade union's Central Committee strove to improve the organizational and education work of the trade-union committees, to raise it to the high level of the requirements set by the party for trade unions. Trade-union committees have been engaged to a great extent in solving the social and personal-amenity problems of the workers, and it has constantly concerned itself with protecting their legal rights and interests.

Oilfield, gas-field and construction workers greeted their trade union's congress with high labor results. The 10th Five-Year Plan had been completed successfully, and indubitable successes also were achieved during the first year of the 11th Five-Year Plan. In 1981 about 1.7 million tons of crude and gas-condensate and 7 billion m³ of gas were recovered above the plan, and construction and installing work volume rose by 10.9 percent. The Urengoy-Gryazovets-MOK [Moscow District Gas Ring] gas pipeline, the linear portion of the Urengoy-Petrovsk gas pipeline, and the third phase of the Mubarek gas complex were built ahead of schedule. Construction of the Tol'yatti-Odessa trunk ammonia pipeline, which is an important national-economic complex, has been completed.

Behind each ton of crude and each cubic meter of gas recovered is the strenuous selfless labor of millions of people. The heroic labor of the working collectives of West Siberia, where the recovery of crude and gas-condensate rose 2.1-fold, gas 4.4-fold, during the 10th Five-Year Plan, inspires great respect and admiration.

The party and the Soviet Government have appraised highly the labor enthusiasm of our industry's workers. CPSU Central Committee General Secretary and Chairman of

the USSR Supreme Soviet Presidium Comrade L. I. Brezhnev has repeatedly congratulated oilfield, gas-field and construction workers on their remarkable victories. For especially outstanding production achievements and labor valor displayed during the reporting period, the USSR Supreme Soviet Presidium conferred the title Hero of Soviet Labor on 29 advanced workers, and 30 advanced production workers became USSR State Prize winners.

Among them were delegates to the second trade-union congress drilling foremen A. M. Alimanov (Azneft' [Azerbaijan Oil-Industry Association]), T. M. Vil'danov (Bashneft' [Bashkir Oil-Industry Association]), D. M. Nurutdinov (Tatneft' [Tatar Oil-Industry Association]) and I. G. Feklov (Kuybyshevneft' [Kuybyshev Oil-Industry Association]), Glavtyumenneftegaz [Main Administration of the Tyumen' Oil and Gas Industry] chief R. T. Bulgakov, mechanics' and erectors' brigade leader M. I. Buyanov (Sibkomplektmontazh), and others.

The wide scope of socialist competition, during which numerous valuable initiatives were born, aided the successes in the work. A frank and searching discussion about the concrete contribution of trade-union organizations to the development of competition and to the creation of conditions for effective work and about mistakes and deficiencies went on at the industry's trade-union congress.

The decisions of the 26th CPSU Congress and the November 1981 CPSU Central Committee Plenum assigned oil and gas industry workers and construction-enterprise workers of these industries important and qualitatively new and complicated goals. The 11th Five-Year Plan is the first stage in realization of the USSR's energy program, which was developed at Comrade L. I. Brezhnev's initiative. In this case, accelerated assimilation of the West Siberian oil and gas field complex will play a most important role. Practically all growth in the country's gas and crude-oil recovery during the current five-year plan will be obtained in this region. The amount of drilling, construction and many other types of work here is to double, and five most huge West Siberia-Central Economic Region trunk gas pipelines and the Urengoy-Uzhgorod export gas pipeline are to be built and put into operation.

"The country is greatly obliged to the gas-field, oilfield and construction workers who have opened up access to West Siberia's riches for their heroic work," said Comrade L. I. Brezhnev at the November 1981 CPSU Central Committee Plenum. "Still greater tasks lie before them for the 11th Five-Year Plan."

Such a high assessment is inspiring West Siberia's workers and all our industry's workers to new feats. In October 1981 the 2-billionth ton of crude since start of development of these fields was recovered in Tyumenskaya Oblast. There also, at the initiative of advanced collectives, a race to reach most rapidly the recovery of 1 million tons of crude and 1 billion m³ of gas per day is being widely promoted. This initiative was approved by the CPSU Central Committee.

It was emphasized at the congress that the Tyumenskaya and Tomskaya Oblast trade-union committees, trade-union committees of the associations, and the FZMK's [factory, plant and local committees] of West Siberia, together with economic organs, should, in the work to mobilize workers for the fulfillment of new tasks, regard the directives of the 26th Party Congress and the November 1981 CPSU Central Committee Plenum and Comrade L. I. Brezhnev's instruction as most important party and state responsibilities.

In fulfilling the new tasks for developing West Siberia, a substantial role is assigned here to those collectives that are working by the expeditionary rotating-personnel method in this region. This requires that the trade-union committees of the Ukrainian and Belorussian republics and of the Bashkiria, Tataria and Kuybyshevskaya and Saratovskaya oblasts support the work of the expeditionary brigades in more concrete fashion. Competition under the "Workers' Relay" principle and under the motto, "Carry out West Siberian orders on time or ahead of time," must be developed in every possible way, its organization must be improved, and the responsibility of interdependent collectives in solving common tasks must be increased.

Our branches of industry have been allocated about 100 billion rubles of capital investment during the new five-year plan, which introduces the task of increasing greatly effectiveness in using these enormous resources by further industrializing construction work, providing for high levels of substantiation of design feasibility, and reducing uncompleted construction and reserves of uninstalled equipment.

Among the most important national economic tasks, the 26th CPSU Congress especially singled out an intensification of economic work and the promotion of production effectiveness in every possible way. The task of improving the transition to primarily an intensive path of development was assigned. This makes acceleration of scientific and technical progress still more urgent.

During the reporting period the trade-union central committee paid much attention to mobilizing the workers' creative activity in the drive for technical progress, promoted development of the collaboration of science with production, and directed the activity of the TsP NTO [Central Administration of the Scientific and Technical Societies] of the Oil and Gas Industry imeni i. M. Gubkin and of the Society of Inventors and Rationalizers.

Creative brigades now number 9,200, public bureaus and groups for economic analysis 1,500, public scientific-research institutes 314, public bureaus of technical information 2,000 and other creative associations 617. The All-Union Public Inspection for Carrying Out Plans for New Equipment played a major role in introducing new equipment, during which 348,000 suggestions were introduced. Inspection commissions are monitoring the selection of 25 problems and the execution of 800 tasks and stages of the most-important scientific and technical programs. The total economic benefit obtained from their realization was about 2 billion rubles.

During the All-Union Socialist Competition for the Achievement of Better Indicators in Rationalizers', Inventors', and Patent-Licensing Work, an economic benefit in the amount of 951 million rubles was obtained.

In light of the tasks that were set by the 26th CPSU Congress and the November 1981 party Central Committee plenum, as was noted at the industry's trade-union congress, the center of attention for the central committee and the trade-union committees of scientific-research and design-development organizations, scientific and technical societies, and societies of rationalizers and inventors should be focused on such major problems of the industry as the development and introduction of new, more effective methods for stimulating oil formations in order to raise the degree of withdrawal of crude from the ground, improvement of the equipment, technology and organization of well drilling, more effective use of casing-head

resources, further development and expansion in the amount of use of the outfit-ted-module method for erecting oilfield facilities, and rise in the effectiveness and reliability of the operation of pipeline transport systems. Earnest attention should be paid to accelerating solution of the most important problems of protecting the environment and people's health from the effects of industrial processes in the oil and gas industry.

A key question of the five-year plan is growth in labor productivity. For this purpose, trade-union committees have conducted inspections, contests and surprise visits, jointly with cost-accounting organs, on the use of production reserves and have worked out and executed organizational and technical measures. Simply by reducing labor expenditures, raising the level of mechanization and automation of labor-intensive processes, and introducing measures for the scientific organization of work in our industries during the 10th Five-Year Plan, a relative manpower reduction of about 120,000 people was made.

At the same time, the potential for labor productivity growth is far from exhausted. The operating inventory of wells is being used with inadequate effectiveness, drilling speeds are still growing slowly (in some areas they have even been reduced), and idle time and worktime losses are still great. Not all enterprises of our branches fulfilled the task on labor-productivity growth in 1981.

Higher goals for labor-productivity growth have been established under the current five-year plan. For Minneftprom [Ministry of Petroleum Industry], it is planned to reduce specific manning for servicing one well by 18 percent, to increase average penetration per drilling brigade per year 1.6-fold, and to increase labor productivity for drilling organizations as a whole by 35 percent. The task is important, but it is completely feasible. This is why it is important to reduce in every possible way the number of workers engaged in manual labor, especially at subsidiary and auxiliary operations. During the new five-year plan, for the first time, plan tasks for reducing the amounts of manual labor are being set for branches of industry, and the trade-union central committee and local trade-union committees are to see to it that each enterprise and organization has its own precise five-year program of measures for solving this important question, which has not only economic but also great social significance.

The reports and delegates' speeches at the congress paid much attention to questions of work safety and the creation at production facilities of healthy and safe working conditions, which will provide for high effectiveness. More than 1 billion rubles were spent during the reporting period to fulfill integrated plans for improving conditions for effecting work safety and to take sanitary and public-health measures. More than 5,000 facilities that did not meet safety requirements were closed, rebuilt or overhauled, enabling working conditions to be improved for more than 200,000 people.

For the first time the trade union has started work, jointly with the ministries, to develop and implement state and industry plans for standardizing work safety. The Unified System for the Organization of Work Safety Operations has been introduced in the industry, and advanced experience is being systematically enriched. The question of providing workers with coveralls, special footwear and other means of individual protection is constantly being monitored by the trade-union central committee.

At the same time, the trade-union central committee has not radically improved the work to provide safe working conditions at production sites. Thus, an unfavorable situation has prevailed at our branches' enterprises in Mangyshlakskaia and Chelyabinskaya Oblasts and in Tataria and Turkmenia, where even an increase in injuries is being observed. Especially frequent are accidents and injuries in transport organizations. Various economic supervisors and trade-union committees do not approach the matters of training and educating drivers, improving the operating condition of transport equipment and the operating regime thereof, and organizing the proper monitoring of traffic safety with the proper sense of responsibility.

The 26th CPSU Congress gave us the task of radically improving working and safety conditions and of taking steps to preclude production-operations injuries. For this purpose it is necessary primarily to achieve good states of organization and discipline at production facilities, to take active preventive measures, to tighten up on exactingness against those who do not display due concern for improving working conditions and operating safety but permit violations of the rules and norms for work safety, and to increase effectiveness in the monitoring of work safety and technical inspection by trade-union committees and activist elements.

Trade-union committees have actively participated in realizing the party's program for further growth in the people's material welfare and cultural living conditions. During the last 5 years 9.3 million m² of total apartment-house space were built for workers of the industries, 672,000 m² of temporary barracks were eliminated, and the network of sanatoria, health centers, recreational centers and housing, and Pioneer camps increased appreciably.

However, not by far has everything been done. Trade-union committees and trade-union workers and activist elements must implement concrete measures for eliminating deficiencies that Comrade L. I. Brezhnev attributed to trade unions at the 26th CPSU Congress. It is necessary to be more active in improving the style, forms and methods of trade-union work and checking and monitoring performance. All these problems were discussed in detail at the Second Congress of the industry's trade union. After discussing the results of the activity, the congress defined the trade union's tasks in fulfilling the decisions of the 26th Party Congress and the November 1981 CPSU Central Committee Plenum decisions and called upon all working collectives to promote widely socialist competition under the motto, "Sixty shock-work weeks for the 60th anniversary of the founding of the USSR," and, after directing the efforts of the competitors to fulfill successfully the plan and the commitments adopted for 1982 and for the five-year plan as a whole, to intensify the drive for savings and thriftiness under the motto, "The economy should be economical."

The congress required trade-union committees to persistently improve the forms and methods of trade-union work and to raise its level, in order that its role as a school for management, a school for economic activity, and a school for communism may be fulfilled completely.

On 20 March 1982, the 17th USSR Congress of Trade Unions completed its work at the Kremlin Palace of Congresses. All its work demonstrated convincingly the monolithic solidarity of the workers around the Leninist party and their resolve to participate actively in executing 26th CPSU Congress decisions and in extending a worthy greeting to a remarkable date--the 60th anniversary of the founding of the Union of SSR's.

The CPSU Central Committee's greeting to the congress and the bright and inspiring speech of CPSU Central Committee General Secretary and USSR Supreme Soviet Presidium Chairman Comrade L. I. Brezhnev, which were permeated with deep concern for the welfare and happiness of the Soviet people and which were adopted as a concrete program for the trade union's activity, attributed special importance to the trade-union forum.

"The task consists," Comrade L. I. Brezhnev stated at the congress, "in restructuring the work of trade-union organizations relative to today's requirements more rapidly and energetically. The trade unions should be occupied boldly with new economic and social problems, rely more broadly on scientific data, and raise continuously the skills of its activist element."

All this requires that our industrial trade-union organizations raise the level of all organizational activity and initiatives in performing managerial and cultural tasks and executing responsibility for the matter entrusted to them, use more actively the broad rights granted to trade union, and accept the Leninist work style.

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FUELS

BETTER EQUIPMENT FOR COAL MINE TUNNELING URGED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 11 Feb 82 p 2

[Article by Yu. Malyshev, Engineering Director of Yuzhkuzbassugol' [South Kuzbass Coal Production Association] and candidate of engineering sciences: "The Ton Is Begun...from the Meter"]

[Text] How the gap between tunneling and mining is being eliminated at underground mines in the Kuzbass [Kuznetsk Coal Basin].

It is known that the degree to which underground mine workers are supplied with mechanized equipment and power is growing, but the needed increase in extraction has not occurred. The source of this contradiction is the gap that has been formed over the years between the capabilities for mining and the capabilities for preparing the breakage front. During the last two decades a lot of modern equipment for mining coal has come to the coal industry. The tunnelers have not received any kind of basically new, highly productive machines. The cutter-loaders are the same, but a little more powerful. The same winches, sleds, carts and drills. The share of manual labor during tunneling still remains high.

Coal enterprise supervisors should draw conclusions from this complicated situation. Unfortunately, some of them underestimate the differences in the equipment for mining and for tunneling. A most typical example in this regard is the Baydayevskaya Underground Mine in the Kuzbass. Throughout the Ninth Five-Year Plan and during the first years of the 10th, its collective constantly carried out the plan and built up mining volume. For doing so it was rewarded generously--morally and materially. And no one, primarily enterprise director A. Pavlov, attributed serious importance to the fact that the development sections systematically were not fulfilling plan tasks, while tasks for mining the coal were, on the contrary, even being overfulfilled.

Just as one would expect, the day of reckoning came. The problems of delivering air, especially to mine-development faces, hauling out the coal, and delivering materials became unsolvable. Tunneling was cut from 18 km in the best of times to 10 km of rock excavation last year. And now this mine has not carried out the plan for mining coal.

At other underground mines the situation has not been so depressing, but still, not by far can all the collectives of Yuzhkuzbassugol' Production Association enterprises boast of proper concern for good organization of development operations. This circumstance has caused completely explicable concern, for both the

Kemerovskaya Oblast Party Committee and the association's management. Urgent measures were adopted to correct the situation. Including the creation of a staff for organizing development work. It acts in close contact with local party organs. The staff attends the monthly meetings of the underground mine's chief engineers, systematically receives information about progress in developing new mine faces, and takes measures when contemplated deadlines are being disrupted.

Creative groups have been organized at the mines to mechanize development work. They have created cutter-loader attachments for drilling boreholes for roof bolting and various transport means that enable mechanization of the delivery of equipment and materials to the development faces.

In order not to think up what has already been created at other enterprises, we have organized in the association a standing operating exhibition of our innovators' engineering creativity. The originators of the operations exhibited have been awarded incentives. The mines themselves make the simpler developments. The production of the more complicated equipment is concentrated in the association. We are making carts, supports that yield, and lattice and fiberglass-fabric lagging. A special department for mechanizing auxiliary processes at developmental workings has been opened at the Mezhdurechensk Central Electrical-Machinery Shop.

We have also examined the programs for the development of mine workings. No few innovations proved by experience have been introduced in them.

The amount of development work has grown. In the last 3 years the tunneling of mine workings has increased by 19 km. At the same time, experience has indicated that the organizational and technical measures conducted within the association are inadequate for drastic changes in developing the breakage front. The principles themselves of managing developmental operations must be reexamined, both at the mines and the associations.

A basic deficiency of the management structure that has been adopted is that organizationally the basic components of development work--tunneling, installation and the supplying of complete sets of equipment--have been disjoined. Therefore, an experiment was initiated last year at one of the largest underground mines--the Kapital'naya.

We created a specialized tunneling module. As far as we know, such a structural subunit has not been established before in the industry's underground mines. It included all development sections. A high degree of brigade specialization was called for. So that the tunnelers would occupy themselves only with their own affairs and not get involved in other work, a brigade for the installation of control consoles, a brigade for the delivery and disassembly of apparatus and equipment, and a brigade for dressing workings for the completion of tunneling were established. An expeditor and a motor vehicle were assigned to the module in order to improve the tunnelers' supply situation.

The labor of the development-module workers was evaluated according to the final product--mine faces ready for operation. A material-incentives system that was worked out to meet deadlines and to provide for quality was put into effect. All these measures helped to raise the prestige of the tunnelers' trade. The qualitative composition of the development collective began to change appreciably for the better. The tunneling pace was increased entirely naturally.

While 15-17 tunnelers' brigades out of 24 at the Kapital'naya mine usually had not been coping with the plan, last year there were only 4. The plan was met and 150,000 tons of coal above the plan were mined. For the first time, after it was rebuilt, the mine reached its designed level--3 million tons of coal per year. Throughout the association as a whole, as many as 60 percent of the development brigades had not been meeting the plan in the worst years. Last year there were only one-third that number. The task--to work without lagging--now appears to be realistic.

Development modules have now been established at the Raspadskaya and Zyryanovskaya Underground Mines in accordance with Kapitalnaya's experience. This same reorganization is being completed at the Underground Mine imeni V. I. Lenin and at the Tomskaya Underground Mine. In summing up the results of socialist competition, it is mandatory to consider development of the breakage face. If a collective does not carry out the plan for tunneling mine workings and for the preparation of new breakage faces, it is deprived of 50 percent of the bonus. If these indicators have been carried out, a 25-percent increment is customarily added to the material award.

Only the first step in the contemplated program has been taken. Right now the installation of equipment at the breakage faces is under the jurisdiction of the association director for production. It would have to be transferred to the engineering director, who is occupied with tunneling, after this directorate has been reinforced with specialists. The supervision of tunneling and installing operations should be concentrated in one set of hands. That principle must be observed at underground mines. Therefore, in addition to the production services that it now has, it must have a service for preparing for production. Accordingly, the underground mine director requires two deputies.

This variant is accomplished at present in an experimental procedure at the Zyryanovskaya Underground Mine. With authorization of the VPO Kuzbassugol' [All-Union Production Association of the Kuznetsk Coal Basin] management, the post of a second deputy director--for preparation for production--has been introduced.

Reorganization of management of developmental operations is, for us, still experimental in nature and a matter of initiative. Judging by the first results, the true direction has been chosen. That being the case, the development modules must be legitimated, the framework of the experiment expanded to association scale, and subunits connected with preparation of the breakage front must, at large mines, be subordinated to the deputy director for production development instead of the deputy chief engineer. And in the association the appropriate services must be subordinated to the first deputy engineering director for production development. As we see, the new posts can be introduced not by increasing administrative-managerial personnel manning but by redistributing responsibilities. In order to bring the matter that has been started to a conclusion and to determine the effectiveness of such a management reorganization, we need the help of USSR Minugleprom [Ministry of Coal Industry]. We would like to continue the experiment under the auspices of the branch's staff and with some backing from it.

We speak, for example, about the progressive method for strengthening the workings with roof bolts, but we do not have the means to mechanize the drilling of the holes for them. We have no elevating and conveying equipment that corresponds to the weight and dimensions of modern mining equipment. We cannot lower a section of

the new, highly productive UKP longwall miner to a longwall because the hoist's capacity will not permit it. Neither are there mine cars of sufficient load-carrying capability to haul these sections into the mine. The weight of the equipment that today's mechanized mine faces are being supplied with reaches thousands of tons. But the designers did not think about how the miners will deliver it to the place of erection. Much has been said and mountains of paper have been written about elevating and conveying means and about the mechanization of development work. But we have seen almost nothing reassuring.

And finally I would like to say this. Today we can give the names of many famous brigade leaders who are engaged in mining, and not just those of the Kuzbass. As for the tunnelers, at best it is their colleagues at their enterprises who know about their achievements. It is probably necessary to call society's attention to the work of these people. Such a wish is dictated by concern about the matter. When a man is in the public eye, it simply does not become him to work just any old way.

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FUELS

STEPS PROPOSED TO SPEED COAL-MINING BUILDUP AT KRASNOYARSK

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Apr 82 p 2

[Article: "Let the KATEK [Kansk-Achinsk Fuel and Power Complex] Strip Mines Grow"]

[Text] The Kansk-Achinsk Fuel and Power Complex today includes the Borodinskiy, Nazarovskiy and the industrial-test Berezovskiy coal strip mines. Last year 36.4 million tons of brown coal were mined at them. During this five-year plan capacity for mining 21 million tons of coal, or almost a third of all the growth of the country's strip-mine operations, is to be introduced at KATEK.

Growth, as we see, is headlong. But even these are only the first steps in bringing into the national economic turnover the enormous riches of this basin, where more than 600 billion tons of coal are concentrated, of which 140 billion tons are suitable for the more effective strip-mining method.

That is why the kray's party organization has adopted the CPSU Central Committee and USSR Council of Ministers decree, "On Additional Measures for Speeding up the Development of Coal Mining by the Strip Method in 1981-1990," as a battle program. This most important document concretized our efforts and helped to single out the main, paramount tasks from the whole diversity of tasks. Enough time has elapsed since adoption of the decree to enable judgment of the first steps of its realization. Just what are the concerned ministries and agencies doing to increase the mining of Kansk-Achinsk coal?

The Borodinskiy Strip Mine's capacity has now been assimilated 100 percent. By 1984 it should grow to 5 million tons of coal. But calculations indicate that if this important task is carried out on time, the requirements of power stations, industrial boilerhouses, and the populations of our kray and of Irkutskaya Oblast for Borodinskiy coal still will not be completely satisfied.

The way out is self-evident: it is time to undertake the construction of Borodinskiy Strip Mine No 2.

The CPSU Central Committee and USSR Council of Ministers decree pointed out the necessity for eliminating the lag in doing stripping work at the mines. This task remains, as before, urgent for the Borodinskiy. Right now there are seven stripping horizons here, with the stripped rock delivered to the dump heaps by rail. Each year about 150 km of railroad track have to be relaid. This work is labor intensive and not prestigious. While the relaying is going on, the stripping

excavators stand idle. Moreover, the work of the whole stripping complex is complicated considerably by the excavation of satellite seams.

An analysis of what has been done by USSR Minugleprom [Ministry of Coal Industry] design and scientific-research institutes showed that the stripping operations must be reequipped--they must be outfitted with EKG-12.5 excavators. This will enable the number of horizons to be reduced to five and the amounts of rail relaying to be cut to less than half. Organization will be simplified and operating effectiveness increased.

How, then, is this proposal of the specialists being realized? Right now just one EKG-12.5 excavator is engaged in stripping, and delivery of the other machines called for by the USSR Minugleprom solution has been put aside for an indefinite period. At the same time, a plant for heavy excavators is being erected at Krasnoyarsk at a shockwork pace. Already this year it should produce the first EKG-12.5 brand machines. It would seem that it would be logical to send them to KATEK's strip mines, the more so since it would be more convenient for the factory's workers to engage in refining this machine, to work on it first-hand. But the planning organs somehow have adopted a different decision: the firstlings of the Krasnoyarsk plant will go to the opposite ends of the earth from KATEK.

The Order of Labor Red Banner Nazarovskiy Strip Mine is exploiting its reserves, and its capacity has been assimilated 115 percent. In a few years the main mining of coal on the basin's western wing should be performed at new sections. Construction of the Achinsk section, where capacity for mining 3 million tons of coal is to be introduced next year, is already going on. It is planned to begin construction of the Chulym section. But these facilities also have something in common with the Borodinskiy Strip Mine's misfortune--they are not obtaining the mining equipment called for by the plan on time.

In order to achieve by 1990 that level of coal strip mining that is called for by the party and government decree, construction work at the KATEK strip mines must be stirred up. Meanwhile, the results of the activity of the main actors at the coal portion of the complex--construction organizations of Minugleprom, USSR Minenergo [Ministry of Power and Electrification], Mintransstroy [Ministry of Transport Construction] and RSFSR Minavtodor [Ministry of Highways]--are not satisfying. These organizations are not coping with plans for the first year of the current five-year plan.

For example, KATEKuglestroy [KATEK Combine for the Construction of Coal Industry Facilities] increased the amount of construction and installing operations 1½-fold over 1980. But even this pace has proved to be inadequate for carrying out the state plan. The level of engineering preparation and production organization in the combine's subunits is still low, and the sharp housing shortage does not enable construction-worker manpower to be built up at the required pace and it exerts a negative effect on the lack of an in-house production base.

Mintransstroy's pace is building up too slowly in the KATEK zone. For, without good transport arterials, it is impossible today to effectively erect the coal complex's facilities. In March of this year the coal workers and the transport builders came to an agreed-on decision in the KATEK Coordination Council on the amount of work for 1982-1983. The job now is to implement the decisions adopted, especially those about the complex of new capacity of the Borodinskiy Strip Mine that

is due for early startup. It is in no way possible to set back the introduction, for the coal has already been assigned to customers for next year.

In order that capacity at the new Berezovskiy Strip Mine No 1 will be turned over in 1984, the introduction of housing and of facilities for social, cultural and personal-amenity purposes must be built up at the Sharypovo industrial park. All of the KATEKuglestroy combine's forces have been concentrated on the solution of this task. But the builders' manpower clearly is insufficient, and the housing situation that has been created is very severe. Here is one of the examples of what this leads to.

Work must begin this year on installation of an ERP-5250 rotary complex, which has the factory number "1." Under existing practice, its crew should take part in assembling this machine. This will permit the coal workers to study well the new complex's design and the peculiarities of servicing its components and assemblies. However, this specially built machine still has no crew, because there is nowhere in Dubinino for the crew to live. The crews of other excavators and of large-load dump trucks still have not been filled out because of the lack of housing.

A KATEKenergostroy trust of the USSR Ministry of Power and Electrification, which basically is building the housing for the coal workers and power workers in this area of KATEK, has for several years not been able to overcome the lag at all. The current lack of housing can tomorrow turn into the nondelivery of hundreds of thousands of tons of coal that the country's economy needs.

Departmental isolation also makes itself felt. For example, several ministries are erecting the Sharypovo industrial park. In such situations the mutual coordination of their actions is simply necessary. Unfortunately, the mutual actions of the various ministries' enterprises and organizations leave much to be desired. USSR Minugleprom has not allocated capital investment this year for the design and construction of "their own" social, cultural and domestic-amenity facilities. We suppose that such a situation is acceptable for the ministries, but the overall job suffers.

The kray's CPSU committee pays constant attention to questions of building up the fuel and power complex. The coordinating council, which includes the supervisors of ministries and agencies that are participating in its erection, is in operation. At our initiative, an agreement has been concluded about the creative collaboration of more than 50 of the country's enterprises and organizations. A plan for ideological support for creating the Kansk-Achinsk complex has been worked out and is being realized. In order to intensify organizational and political and ideological work in KATEK, party organizations and collectives and the Borodinskiy and Sharypovo city party committees were established in August of last year. Staffs under the secretaries of the CPSU city committees are constantly at work at the enterprises and facilities that are under construction.

The kray CPSU committee and all the kray's party organizations are taking steps on their own responsibility to realize a most important component of the country's energy program, which was developed at the initiative of CPSU Central Committee General Secretary and Chairman of the USSR Supreme Soviet Presidium Comrade L. I. Brezhnev. Those negative tendencies that prevent acceleration of the recovery of Kansk-Achinsk coal cannot help but worry us.

In the meantime we go slow, we lose time and we do not provide for the necessary work pace. The situation that has been created requires the increased attention of USSR Gosplan and ministries and agencies to the problem of building up the amounts of coal strip mined in the eastern regions. The Kansk-Achinsk Fuel and Power Complex is the nation's richest coal storehouse. In order that it will be possible to draw on it in full measure tomorrow, construction of the strip mines must be speeded up today.

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FUELS

PROSPECTS FOR UNMANNED COAL MINING DISCUSSED

Moscow TRUD in Russian 6 Apr 82 p 2

[Article by A. Dokukin, Director of the Institute of Mining imeni A. A. Skochinskiy and corresponding member of the USSR Academy of Sciences: "The Coal Conveyor"]

[Text] It has become almost a rule in conversations about fuel problems to begin with a reminder about the "energy crisis," the depletion of oil reserves and the difficulties connected therewith. It goes without saying that there is a problem and that it is real. But are we so defenseless in regard to energy when facing the future? Almost half of the world's coal reserves have been concentrated in USSR territory. This is not only our yesterday's fuel but also our promise for tomorrow.

In this connection, the question of automating and mechanizing production processes in underground mines emerges sharply. Today about 700,000 people are working under the ground. Miners' work occupies one of the first places in labor intensiveness compared with other trades. Each year the underground miners go increasingly deeper into the bowels of the earth, which involves additional difficulties. Even now about 60 percent of the coal is being mined from seams that are high in gas and about 20 percent from seams that present an explosion hazard. At a depth of 1,000-1,200 meters the temperature at the mine face rises to 40 degrees. And in this heat the man at times is working a seam 0.6 meter thick. This is in essence a job of heavy physical work...under a table!

It is perfectly clear that, however colossal are the resources that we expend today on mine ventilation, degassing, cooling the air in mine workings, and so on, the problem at best will be only half solved.

What is the way out? Scientists see it in the gradual replacement of man by highly effective equipment, in order to remove people completely from the breakage face. The application of robots to the most labor-intensive processes in the underground mine is such a general direction of scientific and technical progress in the coal industry. Let us dwell on this question in a bit more detail.

Today we have at our disposal many machines that enable work at breakage and development faces during coal mining to be mechanized in integrated fashion. These are powerful steel "moles"--cutter-loaders that get their teeth into the rock and independently break it up and deliver it to the conveyor, which takes it to a transport arterial.

It would seem, what else can be desired--the machines take the lion's share of the workload in the overall production process on their shoulders. But this is only one aspect of the matter. Take a look at an underground mine and you will see this picture: in front, at the breakage face, a powerful cutter-loader is moving, devouring tons of raw material, and after it come people, who, by means of contrivances and, sometimes, manually, install heavy supports so that the roof of the mine face will not collapse. This is a situation where the computer talks with a sledgehammer.

Specialists have been trying for a long time to correct the situation, to insert the missing link into the operating process, in order to ease the heavy manual work of the miners and to remove them from the breakage face. Representative of a new generation of machines is the AK-3 unit, which does not have defects peculiar to other cutter-loaders: it moves the supports automatically, and the miners' work is reduced to operator-type functions.

The modernized AK-3 model is a machine that yields record productivity while excavating steep seams of average thickness. Daily coal output is up to 1,500-2,000 tons. One man controls the unit from a control panel, which is remotod to a tunnel. The AK-3 has already passed tests at Kuzbass [Kuznetsk Coal Basin] mines.

An AKD-2 unit that will enable coal to be mined at narrow, steep seams is being created within the walls of the Institute of Mining Affairs imeni A. A. Skochinskiy. An automatic mechanism here installs the support at the mine face, controls rock pressure, and executes guided motion, adapting the complex to the changing mine-geology situation. The control scheme is the same: one man at the control panel, and his responsibilities are reduced down to just pressing buttons.

As always happens in science, development in a new direction inevitably involves the birth of new ideas, decisions and designs. Specialists have argued this way: once the coal is excavated at the breakage face without the presence of people, then why are massive supports needed, which greatly increase the weight of the units and reduce their maneuverability and complicate the operator's work? Operation without roof supports was tried and...it proved to be right.

Thus there appeared a family of new machines capable of working effectively in complicated mine-geology conditions at seams less than 0.6-0.9 meter thick. Do you recall my speaking about work "under a table"? Since a man's presence is no longer needed, one need not be concerned about the width and height of the mine face.

For example, the BShU installation enables gently sloping seams to be drilled out and up to 50 tons of coal per shift to be mined. No less effective is the design of our talented inventor Ya. Ya. Gumennik, who has created an automated PPG tunneler for thin steep seams.

Taking man away from the breakage face will permit the use of water-jet coal-mining technology. The mechanism of the action of such designs is well known: a powerful stream of water destroys the coal seam, and then the water carries the coal to the surface over pipes. Operation of the new 12 GD2 water jet is based upon remote program control. As in preceding cases here, the miner's heavy work has been replaced by the functions of an operator, and the coal is excavated without supporting the breakage face.

Apparently, in the next few years nontraditional methods of mining coal will be developed that will enable man to be brought from underground. One method consists in using for mining needs energy that is stored directly in the coal mass. What do I have in mind? The coal contains gas in its micropores. The gas's pressure rises as a function of the depth of excavation, and the coal seam is transformed into something like a compressed spring. If such a seam is to be drilled, then membranes are installed on one side, vibrators on the other, and then, at definite resonance frequencies, the coal seam can self-destruct. The membrane is torn to pieces and the coal falls directly onto the conveyor or into mine cars.

Tempting? Undoubtedly.

It stands to reason that for the machinery to find wide application in practice, it is not enough to bring forth or to create a new machine. Primarily, each innovation requires high design refinement. In this connection, it can be said that a large number of domestic machines and technologies correspond to high international requirements. Thus, a license on the AK-3 unit has been sold to the FRG, and the hydraulic mining method has been licensed in the USA.

And so now we have created a good machine. But is there a guarantee that after leaving the factory department the new unit will operate like a clock for many years? Unfortunately, the problem of machine reliability continues to stand like a stumbling block in the path of the mechanization and automation of coal mining. Units are broken, the machines often being excellent from a design-development point of view.

What is the cause of such a lack of coordination? I recalled this case. At one of the Donbass [Donets Coal Basin] mines a new mining complex had started to operate. We had come to see how the innovation would begin its labor biography. We descend into the mine and...we find that the complex is idle. The operator who controls the unit waves his arms: it is a poor machine, and now and then it breaks down. We ask him to demonstrate the complex at work. The unit cut feverishly into the coal seam and fell silent. It is clear at once. We ask the operator: have you worked in the mine a long time? Why, no, he answered, two weeks ago I came from the army. Commentary, as they say, is superfluous.

As the statistics indicate, only about 19 percent of the equipment idle time can be ascribed to design deficiencies. In the remaining cases, low reliability of the mechanisms is associated with unsatisfactory tending of them. Already today, clearly, there are not enough specialists who can control modern automated systems, and there are not enough good repairmen and not enough engineers who are familiar with the theory and practice of robotics.

It is necessary first of all that new technical ideas quickly find expression in the training programs of vuzes and tekhnikums. Why, for example, should robotics not be introduced along with such disciplines as automatic control and hydraulics? There can also be other forms of training for specialists who will be capable of undertaking servicing of the newest automated systems that are being introduced into mining practice. The USSR Ministry of Higher and Secondary Education should solve this problem.

Another look should be taken also at the process of training in the industry's PTU [vocational and technical school] system. It is necessary to familiarize future

miners in more detail with coal-mining innovations, to propagandize new production methods more widely, to accustom youth to a liking for the equipment, and to teach competent handling of it. Tomorrow's miner will be an operator at the control panel of a complicated cutter-loader, and the specialty will be prestigious and interesting. This work is extremely important and honorable.

11409

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FUELS

DONETS COAL BASIN OFFICIALS RESPOND TO CRITICISM ABOUT MACHINERY USE

Kiev PRAVDA UKRAINY in Russian 13 Apr 82 p 2

[Responses to article published 21 January, by Director A. Chichkan and Party Committee Secretary V. Shuteyev of the Gorlovka Machinebuilding Plant imeni S. M. Kirov; Director A. Laptev and Party Bureau Secretary N. Kosorukov of Dongiprougle-mash [Donetsk State Design Development and Experimental Institute for Coal Machinebuilding]; General Director V. Makhinya of the Science and Production Association Uglemekhanizatsiya; and Deputy UkSSR Minister of Coal Industry A. Manzhul: "'What Is in the Underground-Mine Arsenal'"]

[Text] The inspection material under this headline (PRAVDA UKRAINY, 21 January) discussed how new mining equipment is being created and how it is being used at Donbass [Donets Coal Basin] underground mines. Here is what Director A. Chichkan and Party Committee Secretary V. Shuteyev of the Gorlovka Machinebuilding Plant imeni S. M. Kirov write about it in particular:

"The article correctly points out that the most important task at present is the creation and mastery of production of the means for mechanizing and automating breakage faces at thin, gently sloping and steep seams. The Gorlovka Machinebuilding Plant manufactured in 1981 a test lot of K-103 coal cutter-loaders, and it also completed the preparation of production facilities for the manufacture in 1982 of a shakedown production run (25 units) of these cutter loaders. The preparation of production facilities for Poisk-2 cutter-loaders, which has successfully passed tests on thin steep seams in the Donbass's central zone, has started.

"The design institutes that were to blame for the serious design-development deficiencies that caused the K-120, BKT and A70P2 cutter-loaders to fail acceptance tests, and also the plants that manufactured them, which still are not paying adequate attention to the quality of the equipment being produced, were subjected to just criticism. Administrative, party and trade-union organizations of the enterprise are monitoring constantly the measures aimed at fulfilling tasks for reequipping the coal industry with machinery. These questions were reviewed at a session of the party committee and at a meeting of the party's economic-activist element. In February the question of progress in introducing the new equipment was discussed at party meetings in most departments.

"The work of the commissions for monitoring management's economic activity has been stirred up, and a party staff on the organization of production of the new mining equipment has been established. As a result, four obsolete cutter-loader models

have been taken out of production and the production of modernized models has been mastered. Changes aimed at raising reliability and longevity and at saving metal and reducing labor intensiveness have been introduced into the design of cutter-loaders that are in production."

And what about the scientists and the developers? Dongiprouglemash Director A. Laptev and Party Bureau Secretary N. Kosorukov report:

"In accordance with the Energokompleks and Ugol' Scientific and Technical Programs, a test model of a cutter-loader converted to hydraulic operation was fabricated at the institute's experimental plant and sent to the Underground Mine imeni Artem of Dzerzhinskugol' [Dzerzhinsk Coal-Production Association] to undergo acceptance tests. In so doing, an agreement on scientific and technical collaboration among Dongiprouglemash, DonUGI [Donetsk Scientific Scientific-Research Institute for Coal], Avtomatgormash and the Underground Mine imeni Artem was concluded.

"The Soyuz-19u tunneling cutter-loader and a heavy type drilling-and-tunneling cutter-loader is being created by Dongiprouglemash for making mainline excavations of great length (more than 2 km) through rock of increased strength. The Yasinovatskiy Machinebuilding Plant should master the series production of such cutter-loaders. However, it has not been able to manufacture a test lot of them, and fulfillment of the overall task has thereby been made extremely complicated. For making less lengthy underground-mine excavations, the institute's collective has created the KRT drilling-and-tunneling cutter-loader. It has successfully passed acceptance tests at the Underground Mine imeni 25th CPSU Congress of Makeyevugol' [Makayevka Coal Production Association] and an interagency commission has recommended it for serial production."

The collective of the Uglemekhanizatsiya Science and Production Association has planned numerous engineering measures that accord with the newspaper's remarks. Its General Director V. Makhinya names in his response the main points: to complete work on the creation of OPK supports for the mechanized timbering of conveyor-line bends in longwalls, using individual supports (the full introduction of these means will enable the release of 4,000 workers who are engaged in constructing the mine face); introduce at 21 underground mines integrated plans for mechanizing auxiliary operations and manual work, with the release of more than 2,000 persons from heavy work; create a unit for mechanizing processes for the upkeep of workings and tools for repair work converted to hydraulic operations; and so on.

In order to carry out what has been contemplated, the institute was restructured and a special subdivision for coordinating the activity of rationalizers and inventors was created. Measures are being taken to strengthen and develop the association's production base and to restructure the testing-ground activity with a view to strengthening the ties of science with production and to organize an experimental section in the Aleksandrovskoye Underground Mine Association of Ordzhonikidzeugol' [Ordzhonikidze Coal Production Association].

Deputy UkSSR Minister of Coal Industry A. Manzhul has presented the editorial board with information about those specific measures that the ministry is taking for raising the industry's effectiveness. Everywhere councils of the production-association engineering councils have met, to review progress in fulfilling plans for developing science and technology and the measures for perfecting those plans.

Scientific efforts have been concentrated on solving the most important problems, which define the technical level at the underground mines. The formulation of five-year plans for UkSSR Minugleprom [Ministry of Coal Industry] institutes, in which the number of operations that do not correspond to their main areas have been greatly reduced, has been completed. One hundred and twenty agreements between institutes and enterprises have been concluded. The conversion of NII's [scientific-research institutes] to the cost-accounting system for organizing the work to create, assimilate and introduce new equipment and technology, based upon orders and job authorizations, has been completed.

As a result of the measures taken by UkSSR Minugleprom, a number of cutter-loaders for working thin, gently-sloping seams, the KM87 UM longwall miner for seams more than 1.2 meters thick, the KGU-D longwall miner and the Poisk-2 cutter-loader--for working steep seams, the KRT tunneling cutter-loader for excavating in rock with a hardness of 6-8 units, and other equipment have been recommended for serial production.

Augur installations, front-end scraper-cutter units, longwall miners for seams with roofs that are difficult to collapse, a shield unit, and an automated unit for steep seams will be tested this year. A large number of tunneling machines also will be tested.

"The Integrated Program for Reducing the Use of Manual Labor Throughout UkSSR Minugleprom During 1981-1985," which covers four subbranches (coal mining, coal preparation and briquetting, machinebuilding, and capital construction) and includes measures for expanding the use of progressive, serially produced equipment and the introduction of scientific and technical achievements, has been developed.

The industry is now seeking unused underground mining equipment and is redistributing it among enterprises. Moreover, all spare parts kept in the underground mines and at technical bases are to be inventoried.

11409

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PIPELINES

SHIPPING ON SMALL SIBERIAN RIVERS NEEDED IN SUMMER FOR PIPELINE BUILDERS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 May 82 p 2

[Article by Ya. Kosolapov, deputy chief of Glavsibtruboprovodstroy, Tyumen':
"Use the Spring Flood"]

[Excerpt] Millions of ton of pipe, fuel, reinforced concrete design elements, and other materials must be shipped to the North, to the construction region. And the job is made more difficult by the fact that the new line runs through uninhabited areas dozens of kilometers away from the Urengoy — Novopskov trunk lines under construction, where the subdivisions of the main administration are now concentrated. This means that on top of everything else we must move an enormous amount of equipment, machinery, and house trailers — all the gear of the line workers — to the necessary "corridor."

We cannot expect success unless we ship most of the freight to the construction base this year by river transportation. But the northern navigation season is short. So of course, we cannot help being concerned about how our allies, the river transportation workers, will meet this challenge. The collectives of the RSFSR Ministry of the River Fleet are certainly making a major contribution to the development of Western Siberia. Nonetheless, year after year our requests are not fully met, and this slows down the pace of work considerably. Unfortunately, here too their plans are not reconciled with the needs of the shock construction site.

SOTSIALISTICHESKAYA INDUSTRIYA has already written about this, in March of this year. The subject was use of our transshipment depot in Sergino, which is in the Northern Ob' region. More than 400,000 tons of freight must be shipped to construction workers from there this summer. But the Irtysh Steamship Company only accepted slightly more than half for shipping.

Possibly we are asking river workers to do the impossible? But we need only glance at a map to realize that the water route to the line from Sergino is several times shorter than from Tobol'sk and Omsk, from which most of the freight was brought last year. Therefore fewer ships will be required (the steamship company says it does not have enough ships). Moreover, to make the job of the river workers easier, we proposed to reduce the already planned volume of shipping from Omsk by 54,000 tons. This will release enough barges to serve our depot in Sergino. But this matter still has not been resolved.

There is one more problem involving the river transportation workers. As construction workers are moved to the new line corridor it becomes necessary to make more active use of the small rivers. They are the only way to reach many construction sites in the summer.

Our subdivisions have found dry sectors on the new line where dozens of kilometers of export gas pipeline can be laid in the summer, thus gaining considerable time. But to do this 30,000 tons of pipe and equipment must be shipped to the headwaters of the Kazym River. This can only be done now, during the spring flood, and must be finished by early June. If we miss this time we will have to wait until winter, set up snow roads, and so on.

We understand that it is not a simple matter. There are no sailing directions; ships of the Irtysh Steamship Company has not gone there before. But the interests of the work demand that the new route be developed. We made this appeal to the river workers back in April, but have had no answer. Now the high water is receding.

We hope that the RSFSR Ministry of River Fleet will help resolve these pressing matters.

We also do not have enough floating cranes to receive freight without interruption at all the docks. Very few of them have been allocated. A further problem is that they come dismantled, and we have very few specialists to install them. We would like to receive cranes that are assembled and ready to work.

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PIPELINES

WINTER WORK ON URAL COMPRESSOR PLANT CONSTRUCTION

Moscow GUDOK in Russian 6 Apr 82 p 4

[Article by N. Davydov: "Gas Pipeline"]

[Excerpt] The construction site of the Pelymskaya gas compressor plant was established just a few months ago. There are more than 150 such facilities on the trunk gas pipelines from Western Siberia to the Central Zone. In Sverdlovskaya Oblast alone (this is where the pipelines cross the Ural range) 20 plants are to be built in the current five-year plan.

High pressure must be maintained constantly in the pipeline to deliver gas to its destination over enormous distances. That is why these complex engineering-technical structures must be built every 100-150 kilometers.

The heart of each compressor plant is the shop where the pumping units are located. A gas turbine turns the supercharger; the same gas serves as fuel for the turbines.

The first compressor plant to go on line should be the Ivdel'skaya plant in late April. It is difficult to believe that just six months ago it was nothing but ancient pine forest. Today there are more than 1,000 people in 15 subcontracting organizations working at the site. In February alone they incorporated 1.3 million rubles worth of work. But there is still a great deal to be done and time is pressing, so each section is competing to fulfill its assignments ahead of schedule.

The collectives of a number of trusts and administrations participating at the Ivdel'skaya site have adopted the principle of the "worker relay." Many of them reviewed their earlier obligations and raised them. In response to the appeal of construction workers at the Urengoy pilot compressor plant, the workers at Ivdel'skaya have gone on shock labor watch in honor of the 60th anniversary of the formation of the USSR.

Less than three months remain until the plants in Pelym and Krasnotur'sk are launched. Equipment installation is fully underway at both construction projects. But after all, the concrete workers, painters, carpenters, and installation workers also had to start right from the beginning late last year. Under the harsh conditions of a Ural winter they not only built the buildings of the plant, but also outfitted the residential quarters with all necessities.

"In this time we have formed a solid collective where everybody understands the importance of the assigned jobs and works hard," said A. Kalistratov, senior work supervisor of the general contractor, the Serovenergostroy [Serov Energy Construction] Construction Administration." The foundations were dug here back in November, and now the compressor wing is up and the turbine units are being installed one after the other."

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CSO: 1822/180

PIPELINES

BRIEFS

PIPELINE CONSTRUCTION EQUIPMENT—Leninogorsk, Tatarskaya ASSR—The low Uragan, shaking the environs with the roar of its diesel and rattling its trailer "ammunition," pulled up to the factory gates. V. Chudin, chief engineer of the Leninogorsk Gazspetsmashremont Plant, watched the powerful truck admiringly and said with satisfaction: "This big truck will haul our carts everywhere. Fourteen of these pipe trucks have been built in two months, exactly the number that was ordered. And they all went to Siberia, to the most difficult sections of the new gas pipeline projects." V. Chudin has confidence in the product of his enterprise. The pipe truck based on the Uragan has the state Mark of Quality and it will not fail under difficult line conditions. Another modification based on KrAZ trucks has been designed to haul large-diameter pipe. The trucks from Leninogorsk are very popular with the builders of the trunk pipeline. They are simple and convenient to operate. They can work under low-temperature conditions and without roads. The plant is also preparing to produce a truck which will be able to haul 25 tons of pipe at one time, based on a more powerful KrAZ model. "Our collective faced new challenges after the 'contract of the century' for delivery of Siberian gas to Western Europe was concluded," says chief plant designer Z. Nabiyeu. "Trains carrying pipe that requires especially careful handling are already headed for the central depots of the future Urengoy — Uzhgorod line. This pipe is protected by special insulation. A new type of flatcar was developed to transport it. This car can be mounted on the chassis of heavy-duty trucks. We will begin producing them in early summer." The people at Gazspetmashremont Plant are proud of their participation in carrying out the grand designs of the five-year plan. Incorporating production of new equipment for the Urengoy — Uzhgorod line ahead of schedule is one of the main points of the socialist obligations they adopted in honor of the 60th anniversary of the formation of the USSR. The worker brigades of V. Lyubimov from the machine building shop were the winners in competition for the results of the last week of shock work. [By U. Bogdalov] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 24 Mar 82 p 1] 11176

URENGOY EXPORT LINE CONSTRUCTION -After a short ceremony the crane operated by V. Rassokhin served the first bucket of concrete to the young construction workers of V. Babkin's Brigade, who are going to lay the substructure for the foundation of the building of the Lyalinskaya gas compressor plant. Here in Sverdlovskaya Oblast, in the middle of the cedar forest along the little Yas'ma River, a major national economic project is under construction. When this plant is put on line Urengoy gas will travel by pipe to the center of Russia, to Petrovsk. And four more similar plants are being built alongside, for the gas pipelines from Urengoy to Novoposkov, Uzhgorod, and the Central Zone. The construction workers at the Lyalinskaya plant kept their promise and fulfilled yesterday's assignment by 120 percent: the substructures of the dust traps and refrigeration units rose noticeably. At the other end of the Urengoy - Uzhgorod line, 20 kilometers from the Carpathian City of Ivano-Frankovsk, we met E. Gazaryan, work superintendent of the installation section. He showed us the work of his comrades. The pipe truck drivers, pipe laying machine operators, and welders overfulfilled their norms by 50 percent on this particular day. Eleven kilometers of pipe is already prepared in this section and more than seven kilometers of pipe has been hauled to the line. This has been done by the personnel of just one brigade, led by R. Yemanidze. To avoid damaging the pipe, the pipe layers do not lift it with hooks, but instead use special "towels"; moreover the booms of their cranes are covered with a protective rubber layer. Specialists know what an important job the welders have. The joint must be strong and reliable. Therefore, they cover it with a triple welded seam. As it grew dark in the evening they summarized the day's results in a trailer. They had completed 30 joints in the yard and 15 on the line. This was more than two times the norm. We asked Vladimir Malik, the X-ray examiner, if any of the seams had been defective. "No," he said, smiling, "they did a conscientious job." [By G. Nikolayev and A. Pashkov] [Text] [Moscow TRUD in Russian 18 Apr 82 p 2] 11176

NORTHERN PIPELINE WORKING WELL-Ukhta--Since the beginning of the five-year plan 100 billion cubic meters of gas has been shipped to users of the Siyaniye Severa [Northern Lights] pipeline. This impressive result has been achieved thanks to both the collectives of the Ministry of Construction of Petroleum and Gas Industry Enterprises, who built this gas pipeline with its powerful pumping units, and the transportation workers of the Ukhtatransgaz [Ukhta Gas Transportation] Association, who brought it on line very quickly. This is the only thing that made it possible this year to increase fuel delivery in the Siyaniye Severa system by almost 40 percent. In this same time the Ukhtatransgaz Association has shipped more than 300 million cubic meters of gas beyond the plan to customers. [By V. Krukovskiy] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 6 May 82 p 1] 11176

PIPELINE TO KURSK--Full-scale testing has been successfully completed on the 214-kilometer segment of the gas pipeline that connects Yelets with Kursk. The new line is a continuation of the gas pipeline from Urengoy through Petrovsk to Yelets. The first millions of cubic meters of Tyumen' gas have reached industrial enterprises and residential areas of Kursk and the oblast. The pipeline which is now launched has been connected in to the National Unified Gas System. Subdivisions of Glavyuzhtruboprovodstroy [possibly Main Administration for Pipeline Construction in the South] have begun work on a new sector, from Kursk to Kiev. [By V. Kulagin] [Text] [Moscow IZVESTIYA in Russian 16 Apr 82 p 1] 11176

PIPELINE PROGRESS IN PERM'—Installation of the turbocompressors of the Almaznaya plant, which is on the trunk gas pipeline from Urengoy to Petrovsk, has been completed ahead of schedule. Three pipelines with a total length of more than 700 kilometers run from Urengoy through the oblast. In most of the sections of the lines pipe laying and construction of compressor plants is ahead of schedule. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 2 Apr 82 p 1] 11176

NEW PUMPING EQUIPMENT—Leningrad—All the main gas pipelines of the country use gas pumping units from the Leningrad Nevskiy Zavod Association imeni V. I. Lenin. But their power output is no longer adequate for the growing volume of gas transportation from the gas fields of Western Siberia to the industrial centers in the European parts of the USSR. The Nevskiy Zavod Association has now built a new automated unit called the GTN-25. Its design includes almost 40 innovations. Specialists have reduced the specific metal-intensity of the GTN-25 by two-thirds. The service life of the unit has been increased by 100,000 hours. Three GTN-25's can replace eight of the pumping units presently in use, saving 1.5 million rubles a year. Use of the GTN-25's will reduce the volume of construction-installation work by almost 60 percent and cut the time required to build compressor plants by 15-20 percent. The number of service personnel required for plants equipped with these units will be one-third less. In the 11th Five-Year Plan machine building workers at the plant are expected to manufacture and deliver to the Ministry of Gas Industry dozens of the units with natural gas superchargers figured for pressures of 76 and 100 atmospheres. The collectives of 30 Leningrad enterprises and organizations are involved in preparation for series manufacture of the GTN-25. Participants in this creative cooperation adopted an appeal to allied workers in other cities who must work precisely to achieve the final results. A specially formed coordinating council is monitoring fulfillment of the contract. [By V. Ponomarev] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 Apr 82 p 1] 11176

CSO: 1822/167

GENERAL

NEW UKRAINIAN MINISTER OF POWER AND ELECTRIFICATION APPOINTED

[Editorial Report] Kiev PRAVDA UKRAINY in Russian on 12 May 1982 publishes on page 1 a decree of the Ukrainian Supreme Soviet Presidium dated 11 May announcing the appointment of Vitaliy Fedorovich Sklyarov as minister of power and electrification of the Ukrainian SSR. A short biographical sketch on Sklyarov is published below the decree. On page 3 the newspaper carries a 30-word article informing that A.M. Makukhin has been relieved from his duties as minister of power and electrification in connection with his transfer to another post.

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END